

EXHIBITION OF INDUSTRY. AT A Meeting of the WARRINGTON LOCAL COMMITTEE, held on the 11th day of July, 1851.

It was Resolved,—
That the Building erected for the purpose of the Great Exhibition of 1851 ought to be permanently maintained as a place for the exhibition of the most valuable and important features of the genius, energy, and mechanical skill displayed in its design and construction.

That in the opinion of this Meeting it is essential that the purposes for which the building is to be employed should be such as to render it self-supporting, in order to secure the maintenance of the public buildings and national support by which it has been established, may not be diverted from national to local objects.

That the preservation of the building, and its adaptation to purposes of public recreation and enjoyment, afford, in the opinion of this Meeting, a most valuable opportunity of promoting the progress of Art, and especially the art of Sculpture, which has hitherto failed to attain its due position in this country, by reason of the unsuitableness of the climate for placing marbles in the open air; while the wants of society do not permit the architecture of our public buildings to be made to the same extent as among the ancients, subservient to the requirements of the Artist, and few private residences afford space for the introduction of works of Sculpture, except on such a diminutive scale as is not favourable to the development of high Art.

That for these reasons this Meeting is desirous that the Exhibition Building should be permanently kept on foot under such arrangements as may make it self-supporting, converted into a place of promenade, with lawns, shrubs, flowers, fountains, sculpture, and works of art; while portions of it might be made available for various public exhibitions, for horticultural fairs, and for the purposes of public Societies for the encouragement of Art and Science.

That the Committee having had under consideration several plans which have been submitted to the public with reference to the future destination of the building, are desirous of taking this opportunity of expressing their opinion that the admission of equestrians under any circumstances would be decidedly objectionable.

That Petitions to both Houses of Parliament be signed by the Chairman on behalf of the Meeting, for the preservation of the Exhibition Building, and that the Members for the Borough and County be requested to support the prayer of it; and that copies of these Resolutions be forwarded to the local Commissioners, and advertised in the *Athenæum* and two local Papers.

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LONDON, SATURDAY, JULY 19, 1851.

REVIEWS

Hungary before the March of 1848: represented in her Resources, Constitution, Administration and Culture—[Ungarn im Vormärz]. By Alexius Fényes, Member of the Hungarian Academy. (German Translation.) Leipzig, Herbig; London, Thimm.

ALTHOUGH Hungary now fills a large space in the foreground of public affairs, it is probable that but little is known in Western Europe, by those who sympathize in her political fortune, of her condition in some essential points on which the destinies of all nations ultimately turn. To the wiser, therefore, of her well-wishers a trustworthy account of her internal state, as to population, industry, local and general institutions, at the period immediately before the events of 1848, will be a gift in season,—not less valuable, though less exciting, than sketches of popular heroes or adventures bordering on romance.

The author of the volume now before us, M. Alexius Fényes, has made it the business of his life to collect materials for a complete geographical and statistical survey of his native country,—the results of which, already set forth in more than one special treatise on a larger scale, are here compressed into a portable form, and brought down to the close of 1847. The labour required to gather and arrange such a mass of details would be great under any circumstances:—in Hungary, where the collector has often to create the machinery for his purpose, and to procure by direct inquiry at each single point the information which justifies his total statements, the task might almost seem beyond the powers of any one individual. The difficulty is also increased here by the mixed elements of the aggregate belonging to the Hungarian Crown; which embraces many distinct races, separated by differences of constitution, customs, and local privileges or exemptions,—while in the body of each—as in the free towns, the Hayduck districts, military frontier, &c.—various exceptional cases have further been introduced, either by grants of special laws, rights and immunities, or by restrictions, directly issuing from the Crown:—so that, the multiplicity of details which must be discussed in order to any total result is enormous,—and in many respects general description is impossible. To have done so much as M. Fényes has accomplished in producing a systematic arrangement of these perplexed items, is a work of the highest merit,—the vast labour of which can be appreciated only by those who have conducted similar inquiries with every advantage which has been wanting to the Hungarian inquirer.

We shall not attempt a complete index of a book which is itself a compressed summary of all the multifarious topics included in the statistics of a great kingdom. They comprise its geographical features and climate, population, animal and vegetable productions, agriculture, manufactures and commerce,—its constitution, finances, laws general and municipal, and their various modes of administration,—its religious systems, and institutions for education, science, literature and art. It must suffice to commend the work to the attention of all who desire to acquaint themselves with the interior of a country which has lately become important in many points of view. In doing so, it is scarcely necessary to remark, that the key to all knowledge of its past history and of its future prospects must be sought in those conditions which determine the scale of civilization, the progress or decline of social improvement,—which favour or retard, in short, the national growth:—conditions many of which it is the end of statistical

inquiries to discover and record. To this recommendation a few notes may be added of certain results obtained by M. Fényes, which are capable of general statement, and may throw light on questions of immediate interest.

The first place is due to the natural advantages of the country; which, indeed, is blessed by nearly every circumstance of climate and soil that a nation can desire,—with the further advantage of a variety in its different regions, giving choice of features requisite for every kind of production,—rich warm flats, breezy mountains, and sunny slopes, interspersed with forests and ample inland lakes; and many navigable streams besides the noble Danube. Of the entire territory, covering 6,175 square (geographical) miles, five-sixths are now under cultivation, more or less perfect; and of the remaining portion, consisting in part only of barren soil or mountain, considerable tracts may yet be reclaimed by the drainage of swamps which now encroach on the habitable land in districts bordering the Danube and other rivers. This territorial extent, independently of its natural wealth in soil, minerals and watercourses, ought to place Hungary on a level with other European States of the first class.

The population, however, is still thinly scattered over its surface,—not exceeding 2,479 souls to the square mile; although its numbers are said in the six years before 1846 to have increased at the rate of nearly 1½ per cent. per annum. For the entire population the proportion of the industrial to the agricultural class is set down as 1 in 35 only:—a figure which marks the low condition of the kingdom in one great element of prosperity. The entire numbers are 11,895,796. Of these, we find 4,744,899 are Magyars, and 4,479,466 Slovaks, Raiczes, Kroats, and other Slavonic races:—a proportion noticeable in regard to one grave question started by the revolutionary government of 1848,—which, however, is partly modified by the observation, that, whereas the Slavonic people are scattered in the more outlying and inhospitable districts, the Magyar people are chiefly massed together in the heart of the land, and hold its richest parts,—and that six-sevenths of the nobles, powerful in wealth and privileges, are of pure Magyar blood. Besides these chief races, we find 1,226,666 Germans—described as the most civilized, industrious and mechanical part of the inhabitants; 1,272,787 Wallachians; 259,607 Jews; and a few scattered Greeks, French and Clementines—the latter, although counting no more than 2,150 souls, distinguished by the beauty of their women, said to be far the handsomest in all Hungary. The race is a supposed remnant of the old Illyrian stock, and is found only in two small communes on the military frontier.

The creeds are not less mixed than the races. These are, Roman Catholic, Greek Church, and various Protestant denominations, besides Jews, Greek schismatics, and "Unitarians." The main fact, however, concerning all, is, that they now live in harmony together; and that religious disputes have not for years been added to the other difficulties of a nation in which such animosities were rife at an earlier stage of its history. The relations of the Hungarian Crown to the Roman Catholic Church—the established religion of the kingdom—may be worth noting just now. The king, we find, nominates all archbishops and other inferior dignities,—can create new sees, and endow them, at will, from the revenues of those already extant,—can secularize convents, limit the number of the regulars, release them from dependence on any foreign superiority,—and is, in short, to all secular intents, supreme head of the church.

Besides this, under the so-called *Jus placeti*, "his power extends to the control of any abuse committed in regard of matters referred to Rome,—and to the revision of the canonical oaths taken by bishops to the papal sees; with a view to the prohibition of anything in them which may contravene the obedience of the subject to the sovereign. In pursuance of this right, moreover, no Bull can be published in Hungary without the royal consent."

The general state of the kingdom, as described under the various heads of this survey, was visibly an advancing one in 1847. Agriculture and the breeding of stock were eagerly pursued, with many improvements,—manufactures, though still few and rude, were increasing,—internal communication, by river steamers especially, had of late made rapid progress,—and various steps had been taken to extract the mineral riches of the country. There are, however, independently of political troubles, serious radical obstacles in the way of such an advance as the natural advantages of the territory might well command. The land roads are wretched;—so that commerce is impeded, and the surplus of rich districts can neither be conveyed to less profitable tracts, nor exported, in many cases. Nor are the waterways sufficiently opened; although much has been done within the last ten years for the increase of navigation, by steamers on the Danube and elsewhere. Many considerable rivers, which might be cleared without much difficulty, are sealed by obstructions at certain points of their course: and the funds applied whether to their improvement or to the mending or making of highways are scanty in amount,—and as to the latter, are levied partly in kind or in labour, in a manner the most oppressive to the poorest localities.

Next to this disadvantage comes the position of Hungary as one among many other possessions of an Austrian emperor; and, as such, subject to a fiscal system based on grounds alien to the proper interests of that kingdom. This restraint immediately hampers its foreign commerce, while it indirectly keeps down internal traffic and closes many sources of agricultural profit:—nor can the nation ever reach the station to which many national advantages entitle it, so long as measures touching its industry and production are passed with regard, not to Hungarian interests, but to those of other territories less favoured by nature.

Another serious bar to progress lies at the very heart of the constitution of society itself in Hungary:—in that harsh distinction, namely, between noble and ignoble, which seems especially rooted in the character of certain Asiatic races in Europe,—and which is a fatal cause of their decline below the scale of other European nations. The nobles in Hungary are a superior and favoured caste—they pay no taxes or local rates of any kind. All fiscal contributions are raised from the ignoble classes.—The nobles are indeed bound to military service, nominally but not really at their own cost, in case of an invasion of the kingdom:—while the State burdens in peace fall entirely on the plebeian orders. This is a fatal anachronism in any social system of the nineteenth century: branching out into numberless contradictions and iniquities, all tending to check the progress of a population towards improvement. It amounts essentially to declaring the nobles to be the only people (*populus*, in the Roman sense) of the nation: the rest, although no longer called by slavish names, virtually stand in a servile relation to the privileged military class of landowners. The unsuitable character of this system to modern times is obvious: of

many ill effects, two are very prominently visible. On the one hand, the condition of military service, on its original plan, being abrogated by the modern practice of war, the ground of the privilege no longer affords the State any equivalent for its immunities: while the distinction itself is dangerous to society and detrimental even to the class that enjoys it. On the other hand, the rest of the people, grieved by all the State burdens, which the nobility impose,—and in the agricultural class (the most numerous), subject also to lord's rent and seigniorial services,—are thereby depressed below the point at which spontaneous enterprise is naturally developed, and, for the most part, languish in neglected rudeness, averse to improvements which under the existing system rather enrich the nobles than benefit them. Add to this cause of stagnation, that a military aristocracy by its very nature must despise trade and mechanic arts; while those who exercise them are not only undervalued, but overtaxed, by their superiors, for the support of a State in which the latter enjoy all the prizes. A nation in which this antagonism prevails is clearly—to use a vulgar but expressive illustration—"burning its candle at both ends."

Whatever exactions and iniquities thus arise are made worse by the complications of a method of law—part traditional, part statutory,—crossed by special jurisdictions and varied by local customs and guild or other privileges,—constituting in all such a mass of confusion and such a field for chicanery and oppression that it is wonderful, not that the progress under all these disadvantages should have been so slow, but that any progress whatever should have been made. The view in this chapter of M. Fényes' work is perplexing,—and would be almost hopeless, did not our own English experience prove how much of a mixed and obsolete legal system a nation can bear without falling prostrate under its weight. But the burden which merely vexes and fatigues a people already grown to mature strength is a fatal check to the nascent powers of a race still in the infancy of its social development.

We had noted other interesting topics in the course of M. Fényes' statistical details; but the discussion of the questions to which they lead might carry us too far. They belong to politicians or publicists rather than to the general reader:—and to the former our office is discharged when we have pointed out a source which will yield them occupation enough in their respective pursuits, on a ground nearly new.

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by the fever which broods over the *Tierra Caliente*,—he is captured by malevolent and provoked Indians, and narrowly escapes being tortured to death according to the most approved fashion of savage reprisal. As if these things were not enough, this same Mr. Haller, within a frame of *caoutchouc* (for of *caoutchouc* he must have been made, no composition of average flesh and blood being capable of such endurance and elasticity,) has a heart of tinder. On this tinder heart a spark—the spark—is dropped by a maiden no less suspicious than the daughter of Seguin the Scalp-hunter. To make the terrors of such a family connexion clear, it should be explained that the Scalp-hunters of Northern Mexico are a species of land-privatiers, who occupy themselves in the task of exterminating certain mischievous aborigines, and who receive head-money on every victim or adversary scalped. Of this goodly company Seguin is the leader:—a superior, melancholy, mysterious, tender-hearted man, who, like the *Bravo* in Mr. Fenimore Cooper's Venetian novel, is debited with crimes never committed by him, and whose main object in joining these expeditions has been to discover and reclaim a daughter stolen in her infancy, and made queen over the savages by whom she has been adopted. Into the hands of this Seguin falls Haller the hero, when he is smitten by fever:—and having fallen in love, he agrees to join his father-in-law elect in a scalp-hunting expedition. This, we think, is attesting passion rather strongly, and forcing a love of adventure to the extremities; but Captain Reid must have excitement,—and so early in his tale had exhausted all catastrophes by "flood and field," that such an expedient alone was left to him. What has been sketched will explain the nature of this novel; but the reader shall learn more of its quality from a detached scene. This shall show a feat of manly sport in the camp of "The Scalp-hunters."

"I had returned to my blanket, and was about to stretch myself upon it, when the whoop of a 'gruya' drew my attention. Looking up, I saw one of these birds flying towards the camp. It was coming through a break in the trees that opened from the river. It flew low, and tempted a shot with its broad wings, and low lazy flight. A report rang upon the air! One of the Mexicans had fired his escopette; but the bird flew on, plying its wings with more energy, as if to bear itself out of reach. There was a laugh from the trappers, and a voice cried out—'Yur cursed fool! d' yur think 'ee kud hit a spread blanket wi' that beetle-shaped blunderbox? Pish!' I turned to see who had delivered this odd speech. Two men were pointing their rifles, bringing them to bear upon the bird. One was the young hunter whom I have described. The other was an Indian whom I had not seen before. The cracks were simultaneous: and the crane, dropping its long neck, came whirling down among the trees, where it caught upon a high branch, and remained. From their position neither party knew that the other had fired. A tent was between them; and the two reports had seemed as one. A trapper cried out—'Well done Garey! Lord help the thing that's afore old Kilbar's muzzle, when you skuints through her hind sights.' The Indian just then stepped round the tent. Hearing this side speech, and perceiving the smoke still oozing from the muzzle of the hunter's gun, he turned to the latter with the interrogation—'Did you fire, sir?' This was said in well accentuated and most un-Indian-like English, which would have drawn my attention to the man, had not his singularly imposing appearance rivetted me already. 'Who is he?' I inquired of one near me.—'Don't know,—fresh arriv,' was the short answer.—'Do you mean that he is a stranger here?'—'Jest so. He kumd in thar awhile ago. Don't b'lieve anybody knows him. I guess the captain does; I seed them shake hands.'—'Did I fire? Didn't ye hear a crack? Didn't ye see the thing fall? Look yonder!' Garey, as he spoke, pointed up to the bird. 'We must have fired simultaneously.'—As the Indian

said this, he appealed to his gun, which was still smoking at the muzzle. 'Look hyar, Injun! whether we fired symtaneously, or extraneously, or cattawampovsy, aint the flapping o' a beaver's tail to me; but I tuk sight on that bird; I but that bird; and 'twas my bullet brought the thing down.'—'I think I must have hit it too,' replied the Indian, modestly.—'That's like, with that ar spangled gimcrack,' said Garey, looking disdainfully at the other's gun, and then proudly at his own brown weather-beaten piece—which he had just wiped, and was about to reload.—'Gimcrack or no,' answered the Indian, 'she sends a bullet straighter and farther than any piece I have hitherto met with. I'll warrant she has sent her through the body of the crane.'—'Look hyar, mister; for I s'pose we must call a gentleman a "mister" who speaks so fine and looks so fine, tho' he be an Injun; his mighty easy to settle who hut the bird. That thing's a fifty, or tharabout's; Kilbar's a ninety. 'Taint hard to tell which has plugged the varmint; we'll soon see; and so saying, the hunter stepped off towards the tree, on which hung the gruya, high up.—'How are you to get it down,' cried one of the men, who had stepped forward to witness the settlement of this curious dispute. There was no reply, for every one saw that Garey was pointing his gun for a shot. The crack followed; and the branch, shivered by his bullet, bent downward under the weight of the gruya; but the bird caught in a double fork, still stuck fast in the broken limb. A murmur of approbation followed the shot. These were men not accustomed to hurrah loudly at a trivial incident. The Indian now approached, having reloaded his piece. Taking aim at the shattered point, cutting it clean from the tree! The bird fell to the ground amidst expressions of applause from the spectators, but chiefly from Mexican and Indian hunters. It was at once picked up and examined. Two bullets had passed through its body! Either would have killed it. A shadow of unpleasant feelings was visible on the face of the young trapper. * * Without saying a word he commenced wiping out his gun, with that stoical calmness peculiar to men of his calling. I observed that he proceeded to load with more than usual care. It was evident he would not rest satisfied with the trials already made, but would either beat the 'Injun' or be himself 'whipped into shucks.' So he declared in a muttered speech to his comrades. His piece was soon loaded; and, swinging her to the hunter's carry, he turned to the crowd now collected from all parts of the camp. 'Thar's one kind o' shootin',' said he, 'that's jest as easy as fallin' off a log. Any man kin do it, as kin look straight through hind-sights. But then thar's another kind, that aint so easy; it needs nare.' Here the trapper paused; and looked toward the Indian, who was also re-loading. 'Look hyar, stranger!' continued he, addressing the latter. 'Have ye got a cummarade on the ground, as knows yer shootin'?' The Indian, after a moment's hesitation, answered 'Yes.'—'Kin yer cummarade depend on yer shot?'—'Oh! I think so. Why do you wish to know that?'—'Why—I'm a goin' to show ye a shot we sometimes practise at Bent's Fort, jest to tickle the greenhorns. 'Taint much o' a shot, nayther; but it tries the naves a little, I reckon. Hoy! Rube!—'D—n yur! What do 'ee want?' This was spoken in an energetic and angry-like voice, that turned all eyes to the quarter whence it proceeded. At the first glance, there seemed to be no one in that direction. In looking more carefully, among the logs and stumps, an individual was discovered, seated by one of the fires. It would have been difficult to tell that it was a human body, had not the arms at the moment been in motion. The back was turned towards the crowd, and the head had disappeared, sunk forward over the fire. The object, from where we were standing, looked more like the stump of a cottonwood, dressed in dirt-coloured buckskin, than the body of a human being. In getting nearer, and round to the front of it, it was seen to be a man—though a very curious one—holding a long rib of deer-meat in both hands, which he was polishing with a very poor set of teeth. The whole appearance of this individual was odd and striking. His dress—if dress it could be called—was simple as it was savage. It consisted of what might have once been a hunting shirt, but which now looked more like a leathern bag with the bottom ripped open,

* The conditions of the robot are not described at all by M. Fényes; an omission which must be pointed out as a serious defect in any statistical account of Hungary.

N° 12387

and sleeves sewed into the sides. It was of a dirty-brown colour, wrinkled at the hollow of the arms, patched around the armpits, and greasy all over: it was fairly 'caked' with dirt! There was no attempt at either ornament or fringe. There had been a cape; but this had evidently been drawn upon, from time to time, for patches and other uses, until scarcely a vestige of it remained. The leggings and moccasins were on a par with the shirt; and seemed to have been manufactured out of the same hide. They, too, were dirt-brown, patched, wrinkled, and greasy. They did not meet each other, but left a piece of the ankle bare; and that also was dirt-brown, like the buckskin. There was no undershirt, vest, or other garment to be seen, with the exception of a close-fitting cap, which had once been catskin; but the hair was all worn off it—leaving a greasy, lathery-looking surface, that corresponded well with the other parts of the dress. Cap, shirt, leggings, and moccasins, looked as if they had never been stripped off, since the day they were first tried on; and that might have been many a year ago. The shirt was open—displaying the naked breast and throat—and these, as well as the face, hands, and ankles, had been tanned by the sun, and smoked by the fire, to the hue of rusty copper. The whole man—clothes and all—looked as if he had been smoked on purpose! His face bespoke a man of sixty. The features were sharp and somewhat aquiline; and the small eye was dark, quick, and piercing. His hair was black and cut short. His complexion had been naturally brunette, though there was nothing of the Frenchman or Spaniard in his physiognomy. He was more likely of the black Saxon breed. * * After making answer as above, the old fellow sat for some time, with his head between his knees—chewing, mumbling, and growling, like a lean old wolf, angry at being disturbed in his meal. 'Come hyar, Rubee! I want ye a bit,' continued Gary, in a tone of half entreaty. * * 'What do'ee want, Billee?' he inquired, going up to the trapper. 'I want ye to hold this,' answered Gary, offering him a round white shell, about the size of a watch; a species, of which there were many strewn over the ground.—'Is't a bet, boyee?'—'No, it is not.'—'Aint wastin' yur powder, are yur.'—'I've been beat shootin',' replied the trapper in an under tone, 'by that ar Injun.'—The old man looked over, to where the strange Indian was standing erect and majestic, in all the pride of his plumage. There was no appearance of triumph or swagger about him, as he stood leaning on his rifle, in an attitude at once calm and dignified. * * The smoky carcass moved away, with a slow and regular pace, that showed he was measuring the yards. When he had stepped the sixtieth yard, he faced about, and stood erect—placing his heels together. He then extended his right arm—raising it until his hand was on a level with his shoulder—and, holding the shell in his fingers, flung it side to the front, shouted back—'Now, Billee, shoot, an be d-d to yur!'—The shell was slightly concave—the concavity turned to the front. The thumb and finger reached half round the circumference—so that a part of the edge was hidden; and the surface, turned towards the marksmen, was not larger than the dial of a common watch. * * Gary, drawing a long breath, planted himself firmly—the heel of his left foot opposite to, and some inches in advance of the hollow of his right. Then, jerking up his gun, and throwing the barrel across his left palm, he cried out to his comrade:—'Steady, old bone an sinner! hyar's at ye!' The words were scarcely out, when the gun was levelled. There was a moment's deathlike silence—all eyes looking to the mark. Then came the crack—and the shell was seen to fly, shivered into fifty fragments! There was a cheer from the crowd. Old Rubee stooped to pick up one of the pieces; and, after examining it for a moment, shouted in a loud voice:—'Plum centre!' The young trapper had, in fact, hit the mark in the very centre—as the blue stain of the bullet testified."

Not merely by its matter alone, but by its manner, will the above scene remind the reader of similar passages in Mr. Fenimore Cooper's Indian romances. Though large portions have been retrenched from it, it remains still so long that there is no possibility of showing the Coco

Indian's Rowland to an Oliver as astonishing as the above. In more points than the above, too, does Captain Reid show himself to have been a diligent student of the Transatlantic romancer. The story of Seguin's lost child was anticipated in 'The Borderers.' Whether its inspirations, however, be original or derived, 'The Scalp-hunters' is a tale which, in spite of some revolting horrors, will hold its readers fast,—and which impresses us with the conviction that its writer has the power, if he have also the will (which includes the taste) to write far better tales.

College Life in the Time of James the First, as illustrated by an Unpublished Diary of Sir Symonds D'Ewes, Bart. and M.P. Parker.

Sir Symonds D'Ewes—a famous member of the Long Parliament, whose "Notes" preserved in the Harleian MSS. are familiar to all historical writers—entered as a scholar of St. John's, Cambridge, in 1618. He remained at the University about two years; during the greater part of which time he kept a diary, in which he appears to have set down whatever trifling event occurred to himself—from the drawing of a rotten tooth to a college row and fine—and the small news and private scandals which formed the staple conversation of extra-academical hours. The materials so accumulated, like much of Pepys's 'Diary,' throw curious side-lights on the manners and modes of life at the period in which they were jotted down. They appear, however, to have been used by the present editor or editors with more than ordinary editorial licence. Very little of "College Life" is given in D'Ewes's own words; and much of the matter is, we suspect, from other sources, to which no allusions or references are made. To the historian, indeed, the volume in its present shape is of no value. No information is afforded as to the present state of the manuscript, nor do we here learn where it may be found. The principles on which its text has been dealt with in the present concoction are not defined. No name on the title-page offers a guarantee even that the extracts are correctly given. The editor probably had good reasons for not printing the MS. relation. D'Ewes was not an elegant or an apt narrator of events. His reflections were generally feeble, and his syntax was not of a kind to recommend him to modern readers. We have no doubt his "Diary" is extremely dull. But any person offering to re-cast his matter, so as to present it in a more picturesque and vivid manner, should have explained very distinctly at the outset the amount of liberties taken with the original text; and the occasions when he departed from the text in search of illustrations elsewhere should have been carefully noted.

That the book contains curious matter illustrative of college life at an important period of historical transition, a few extracts will abundantly prove. The time is one of profound interest to modern inquirers. The civil war had then its origin. A royal pedant filled the throne of the Tudors. The spirit of Laud ruled in the councils of the Church. The Precisians as they were called by Parker, the Puritans as they were contemptuously styled by their enemies, were already an active and powerful party. Old ideas were going out,—new ones coming in. Huge remnants of the feudal system and many traces of feudal manners still remained; but their hold on society was much relaxed,—and ere many more years passed away they were gone for ever. The court fool and the prævaricator of the University were of the "institutions" then passing away. Take the following account of the way in which the prævaricator discharged his Therapist's functions.—

"At this period the University, like every other

great establishment, had its privileged jester. As the Fool in a nobleman's household, and as Archie Armstrong at court, so were the Tripos and the Prævaricator at the two Comitia. Under the pretence of maintaining some philosophical question, they poured out a medley of absurd jokes and personal ridicule. By the statutes they were directed to confine themselves to the exercise of refined and classical wit, and all vulgar jesting was prohibited; but in process of time the statutes were constantly set at defiance. In 1626 the Heads issued a decree, in which, after referring to those golden days of old when *Prævaricatores quid poterant contradicendi subtilitate veritatem philosophicam elucere, et Tripodes sua quaestio ingeniosè et appositè defenderunt*,—they ordered that every future Prævaricator or Tripos who should transgress the rules of decorum by ridiculing any person, or office, or ordinance whatever, should be degraded or imprisoned; and if the case should seem to deserve a severer punishment, that he should be expelled. These stringent regulations may have checked the licence for a season; but in the year of the Restoration, when the whole University was too outrageous in its mirth to think of any rigid enforcement of the statute, it appears from a copy of his speech still in existence, that the Prævaricator's gibes were launched forth at all present, without mercy and without distinction. The undergraduates, in their places aloft, are compared to chickens thrusting their heads out of a coop, and their incessant chatter is contrasted with the sleepy silence of the Doctors below. He calls out to them, that if they will let down an old shoe, as the debtors in prison let down their pouches through the grating, he will have pity upon them, and send up a few jokes. He tells the Proctors that one of them is an ox and the other an ass; proving it by a syllogism. The one may defend the University with his horns, and the other with his heels. The one may furnish beef for the rural clergy who are come up to the festivities; and for any of them who are sick the other may supply milk. A certain member of St. John's is congratulated on his having demolished the arguments of Popery in his public exercise, so that—*Suis et ipsa Roma viribus ruit*. Another speaker is accused of having lugged in Priscian *per auribus*, and broken his head. Another is told that his face is like a sun-dial, standing upon a post; and that his nose can never be put into a verse, inasmuch as it is more than six feet in length. The Physicians are asked whether it is true that Homer died of the *Iliaca passio*. The Inceptors who had taken their bachelor's degree before the troubles began, and have now ridden up, well-booted, to be Masters, are compared to the well-booted Grecians in the Trojan War: and he taunts them with being old enough to remember it. The Doctors are asleep, and in their sleep they dream: yet little do they dream of being ejected. Alexander slept with Homer under his pillow: the doctors do not sleep with Homer under their pillow or in their head. Their politics are worse than their prosody, and their prosody is execrable: for six years ago they wrote laudatory verses upon Oliver, and called them *Oliva Pacis*; while a certain Fellow of Trinity saluted him as king. Now that they laud King Charles, may we not suspect that, *facit indignatio verum*, as the poet says? Their favourite word is *quandoque*: *quandoque* they are for the King; *quandoque* for the Parliament; *quandoque* for the Protector; *quandoque* for the King again. 'As to that speaker who yesterday introduced so many *salve's* into his speech, and at the same time was rather hard upon the Brewer of Huntingdon, let me ask, *Quis expedit pittaco suum salve?* May I not fairly suspect that the beer in which he has been drinking the King's health is rather stronger beer than Oliver's?"

Our next paragraph affords a glimpse of the actual college life of the time.—

"Symonds entered upon his residence in the month of July, immediately after the Commencement. His rooms were in the first, or, as it was then called, the 'old' court. He would have preferred the second, or the 'new' court, as being in a 'better situation, and the air more pleasant.' The third court was not yet built. His chamber-fellow was one William Cuson, who had once been his school-fellow. Not only in the Universities, but in the Inns of Court also, there were usually two or more occupants of

the same chamber, and a common expedient to gain room was the trundle or trundle bed, running upon low wheels or castors. In Magdalene College, Oxford, it is directed by the statutes that the scholars shall sleep in 'lecti rotule, vulgariter trooky beddys,' each under the bed of one of the fellows. The character of his chamber-fellow was of course in the case of every freshman a matter of extreme importance, and careful fathers were wont to press this point with much anxiety in their letters to the tutor. In the more favourable instances there resulted an almost brotherly attachment. Both Jeremy Taylor and Bishop Hall were materially assisted in starting upon the career of life by their respective chamber-fellows at Caius and Emmanuel. And our friend Symonds always speaks of Cason as his 'loving' chamber-fellow. The usual dinner-hour was eleven, and an hour earlier in the vacations."

A little anecdote of Richard Senhouse, afterwards Bishop of Carlisle, is worth extracting for the trait of character which it exhibits.—

"Having once at his table certain friends who were in danger of quarrelling over the discussion of a point of difference between two writers of antiquity, he interrupted them by observing that after all it was a difference which might easily be reconciled, as he would satisfy them in a moment. Retiring, therefore, into his study, as if for the purpose of reference, he summoned the disputants immediately afterwards to follow him, and there he exhibited to them the authors in question quietly reposing on the table with a cup of sack between them."

We will add to these illustrative extracts Bishop Corbet's *bon-mot* on St. Paul's.—

"News from London that 'the King with all the peers' had gone in state to St. Paul's, 'the streets being railed off' for the convenience of the procession; and that the Bishop of London, Dr. King, had preached before them 'a learned and excellent sermon,' at Paul's Cross. As to the object of this unwonted proceeding,—for there had never been such a sight in London since the time of the Spanish Armada—every one was in the dark. Some said it was 'only about the repairing of the church,' which had lost its steeple by fire about twenty years before; while others, thinking the alleged cause insufficient for the effect, endeavoured to persuade themselves that it was a public thanksgiving for the Prince Palatine's election to the crown of Bohemia. The repairing of the cathedral, however, was after all the object in view. When the bishop's sermon was over, King James retired with him into his palace, where they consulted together upon the best method of raising money: but the King himself had nothing to give, and the courtiers followed the King's example, and the citizens were rather languid in their support of cathedrals about this time; so that this imposing commencement had a ridiculous termination. A commission was issued, and there the matter ended. The work was not set about in earnest until King Charles took it up, about fourteen years afterwards; and then it was that Bishop Corbet, in addressing the clergy of his diocese, told them, that although the Apostle himself did not like the *stoning* he got at Lystra, a good *stoning* was nevertheless the very thing his church in London stood most in need of."

These citations will serve to show that D'Ewes's "Diary" is here presented in a readable and attractive fashion; and we cannot but express our regret that the anonymous editorship, and the strange silence observed as to how far the matter is to be taken on the authority of the Diarist and how much of it is justly due to others, should stand in the way of its being made available for the grave purposes of the historian. Should the book come to a second edition, these omissions should be rectified.

The Collected Works of Douglas Jerrold. Vol. I.—St. Giles and St. James. Bradbury & Evans.

THE first volume of a collected edition of Mr. Douglas Jerrold's writings is now before us:—the entire series, it is expected, will occupy about eight or ten volumes. The size is that convenient crown octavo which Dr. Johnson

loved for a favourite book,—adapted equally for the arm-chair, the coat-pocket, and the reading-desk. A fair page, with a black border framing the letter-press, bold clear type, good paper, and a neat and durable cloth binding combine to give a neat form to a re-issue for which we believe there has been a long demand.

The issue of a collected edition of his works is generally a tempting time to an author. It occurs to a man generally when the trial of strength is over and success is fairly won. In answer to a call for such collection, writers are apt to indulge the public with biographical details, and with confidences as to the causes which first led them to try the pen. Mr. Jerrold contents himself with one brief observation on this topic.—"I will not," he says in his new preface, "at least in these pages, yield to the indulgence further than to say, that self-helped and self-guided, I began the world at an age when, as a general rule, boys have not laid down their primers: that the cockpit of a man-of-war was at thirteen exchanged for the struggle of London: that appearing in print ere the meaning of words was duly mastered—no one can be more alive than myself to the worthlessness of such early mutterings."

The qualification in this paragraph would seem to indicate that the world may hereafter receive new and more personal "chronicles" from the author of "Cloverbrook"—more "characters" of men by the sketcher of "men of character." This is well:—for there is much in every man's experience of life that will not weave into any web of fiction. The collection of works to compose the new edition will be also a selection of Mr. Jerrold's writings. Three or four of his tales, such as 'St. Giles and St. James,' 'The Story of a Feather,' 'The Man made of Money,'—some score or more plays, from 'Black-eyed Susan' to 'Retired from Business'—the admirable collection of portraits called 'Men of Character,' originally published in *Blackwood*—the series of popular reprints from *Punch*, such as 'Mrs. Caudle's Lectures,' 'Punch's Letters to his Son,' and 'The Complete Letter Writer'—and a collection of Miscellaneous Essays gathered from many quarters, our own columns included—will of course make part of it. The collection will enable the reading public of the present day to trace the more serious, subtle and profound views of thought which—unknown to many—constitute the higher literary merits of the successful dramatist. In some of Mr. Jerrold's anonymous essays there are flights of fancy and depths of thinking quite Shakspearian. It is not the finer veins of feeling and imagination which he has successfully worked that most readily coin themselves into currency. There is a poetry in works of Mr. Jerrold's little understood by those who look on the author principally as the impersonation of *Punch*. However we may estimate such works as 'St. Giles and St. James' and 'The Story of a Feather,' the public will probably learn by means of this re-issue to understand that he by no means shows to his best advantage in the formal utterances of his genius.

With regard to the story before us, we are relieved from the necessity of going minutely through its plot and characters by the circumstance of its having been some time before the public,—though in another and an incomplete form. The title suggests a tale of striking contrasts: but cannot foreshadow the amount of playful wit, quaint wisdom, true characterization, and thoughtful philosophy which enliven and sustain this story of high and low life. We will quote the opening paragraph,—painting the first scene of the story, and suggesting the morals which attend its course.—

"The streets were empty. Pitiless cold had driven

all who had the shelter of a roof to their homes; and the north-east blast seemed to howl in triumph above the untrodden snow. Winter was at the heart of all things. The wretched, dumb with excessive misery, suffered, in stupid resignation, the tyranny of the season. Human blood stagnated in the breast of want; and death in that despairing hour loomed its terrors, looked, in the eyes of many a wretch, a sweet deliverer. It was a time when the very poor, barred from the commonest things of earth, take strange counsel with themselves, and, in the deep humility of destitution, believe they are the burden and the offal of the world. It was a time when the easy, comfortable man, touched with finest sense of human suffering, gives from his abundance; and, whilst bestowing, feels almost ashamed that, with much wide-spread misery circled round him, he has all things fitting; all things grateful. The smitten spirit asks therefore he is not of the multitude of wretchedness; demands to know for what especial excellence he is promoted above the thousand, thousand starving creatures: in his very tenderness for misery, tests his privilege of exemption from a woe that withers manhood in man, bowing him downward to the brute. And so questioned, this man gives in modesty of spirit—in very thankfulness of soul. His aims are not cold, formal charities; but reverent sacrifices to his suffering brother. It was a time when selfishness hugs itself in its own warmth; with no other thoughts than of its pleasant possessions; all made pleasant, sweeter, by the desolation around. When the mere worldling rejoices the more in his warm chamber, because it is so bitter cold without; when he eats and drinks with whetted appetite, because he hears of destitution, prowling like a wolf around his well-barred house; when, in fine, he bears his every comfort about him with the pride of a conqueror. A time when such a man sees in the misery of his fellow-beings nothing save his own victory of fortune—his own successes in a suffering world. To such a man the poor are but the tattered slaves that grace his triumph. It was a time, too, when human nature often shows its true divinity, and with misery like a garment clinging to it, forgets its wretchedness in sympathy with suffering. A time, when in the cellars and garrets of the poor are acted scenes which make the noblest heroism of life; which prove the immortal texture of the human heart, not wholly seared by the branding-iron of the torturing hour. A time when in want, in anguish, in throes of mortal agony, some seed is sown that bears a flower in heaven."

With the sparkle of satire and fancy on every page, it is difficult to select a single paragraph that will give a fair idea of the general text—without demanding too much of explanation for our purpose. But we turn for a lighter page or so to Mr. Capstick, ex-muffin maker and present Member of Parliament—an amiable misanthropist, "who wore his hatred of mankind as he would have worn a diamond ring—a thing at once to be put in the best light and to be very proud of"—and his speech-practising in the garden to his servant, Bright

Jem.—

"The truth is, Jem, I had resolved to sit a whole session, and not say a syllable. But I shall be aggravated to speak, I know I shall. The fact is, I did think I should be abashed—knocked clean down—by the tremendous wisdom before, behind me, on all sides of me. Now—it isn't so, Jem, and Capstick looked big. 'I did think my great difficulty would be to speak; whereas, hearing what I do hear, the difficulty for me is to hold my tongue. In this way—I feel it—I shall be made an orator of against my will. By the way, Jem, talking of oratory, just sit down in that arbour, and fancy yourself the House of Commons.'—'Couldn't do it, sir.' Capstick imperatively waved his arm. 'Well, then,—there, sir,' said Jem; and he seated himself bolt upright in a honeysuckle bower, and took off his hat, and smoothed down his few speckled hairs; and put on a face of gravity.—'That won't do at all,' cried Capstick. 'I just want to try a little speech, and that's not a bit like the House of Commons. No; roll yourself about; and now whistle a little bit; and now put on your hat; and now throw your legs upon the seat; and, above all, seem to be doing anything but

listening to me. If you seem to attend to what I say, you'll put me out at once. Not at all parliamentary, *Jem*.—'Shall I shuffle my legs, and drum my fingers upon the table? Will that do?' cried *Jem*.—'Pretty well: that will be something,' answered *Capstick*.—'Or I tell you what, sir;—if, while you are making your oration, I was to play upon this jew's-harp'—and *Jem* produced that harmonious instrument from his waistcoat pocket—'would that be parliamentary and noisy enough?'—'We'll try the jew's-harp,' replied *Capstick*, 'for I have heard much worse noises since I sat for Liquorish. Wait a minute'—for *Jem* essayed to preludise—'and let me explain. The motion I am going to make, *Jem*, is to shorten the time in the pillory.' *Jem* shook his head hopelessly. 'According to the law, as at present operating, the time of the pillory is one hour. Now, I don't want to be called a revolutionist, *Jem*; I don't want to array all the respectability and all the property of the land against me.'—'Don't, sir, don't; if you love your precious peace of mind, don't think of it,' cried *Jem*.—'Therefore, I do not at present intend to move the total abolition of the pillory,' said *Capstick*.—'You'd be stoned in the streets, if you did. People will bear a good deal, sir; but they won't have their rights interfered with in that manner. Do take care of yourself, pray do. I shouldn't like to see you in the Tower,' said *Jem*, with genuine tenderness. 'Let the pillory alone, sir; touch that, and folks will swear you're going to lay your hands upon the golden crown next; for it's wonderful what they do mix up with the crown sometimes, to be sure.'—'Fear not, *Jem*. I shall respect the wholesome prejudices of my countrymen; and therefore shall only move that the time in the pillory be henceforth reduced from an hour to half-an-hour. That's gentle, I think?'—*Jem* stroked his chin—shook his head. 'I know what they'll call it, sir; interfering with the liberty of the subject. No, they'll say—our forefathers, and their fathers afore 'em, all stood an hour, and why shouldn't we?'—'I am prepared for a little opposition, *Jem*; but, just fancy yourself the House, while I speak my speech. Make as much noise, and be as inattentive as possible, and then I shall get on.' *Jem* obediently buzzed—buzzed with the jew's-harp, shambled with his feet, rocked himself backwards and forwards; and, to the extent of his genius, endeavoured to multiply himself into a very full House. *Capstick* took off his hat—held forth his right arm as before, with the supplementary addition of a piece of paper in his hand, and again with his other arm supported his left coat-tail. 'Sir'—said *Capstick*, looking as full as he could at *Jem*, who rocked and shifted every minute—'Sir, it was an observation of a Roman emperor—'Which one?' asked *Jem*.—'That's immaterial,' answered *Capstick*.—'A question that will certainly not be asked in debate. I take a Roman emperor as something strong to begin with—of a Roman emperor that *Qui facit per alium*—'Hullo!' cried *Jem*, holding the jew's-harp wide away from his mouth; 'what's that—Latin?'—'Latin,' answered *Capstick*.—'Well—my stars!'—said *Jem*.—'I never knew that you knew Latin.'—'Nor did I, *Jem*,' replied *Capstick* smilingly. 'But I don't know how it is; when a man once gets into Parliament, Latin seems to come upon him as a matter of course. Now go on with your jew's-harp, and make as much noise as you like, but don't speak to me. 'Tisn't parliamentary. Now then,' and *Capstick* resumed the senator—'it was an observation of a Roman emperor—'If you please, sir, I've laid some bread and cheese and ale in the parlour,' said *Becky*, breaking in upon the debate. 'It's a hot day, sir, and I thought you might be tired.'—'Well,'—*Jem* don't know. What, *Jem*, asked *Capstick*, smacking his lips, 'what do you propose?'—'Why,' answered *Jem* rising, 'I propose that the House do now adjourn.'—*Capstick* returned the paper to his pocket, and taking up his hat, said—'I second the motion.' After a very short pause, he added—'And it is adjourned accordingly.'

Mr. Jerrold complains in his preface that the cry of "bitter" has been somewhat too readily and unjustly raised against his writings:—and some parts of this story have, he says, been so stigmatized. "Bitter," he adds, "has a little

too often been the ready word when certain critics have condescended to bend their eyes on my page; so ready, that were my ink redolent of myrrh and frankincense, I well know the sort of ready-made criticism that would cry, with a denouncing shiver,—'aloes, aloes!'" Mr. Jerrold deals, in stories like this, with elements the mere statement of which will seem bitter to those who desire to shut their eyes to the misery that is around them,—and he certainly does not go in search of any literary frankincense to sweeten the gall that is essential in such elements. The true humanities underlie a bitterness like this. Mr. Jerrold has no worse motive in such writing than to improve the tone of the society in which he lives; and tonics are for the most part bitter—but very wholesome, notwithstanding.

England and Scotland: a Traveller's Diary—[England und Schottland, &c.]. By Fanny Lewald. Vol. I. containing London. Brunswick, Vieweg; London, Williams & Norgate.

We have seen *Mdlle. Lewald* before now; writing parodies on Hahn-Hahn novels [*Ath. No. 1028*],—and questionable romances of her own [*Ath. No. 1149*],—or sketching the 'Italians at Home' [*Ath. No. 1092*]. She now comes as a visitor to London; where she passed some months during the season of 1850,—industriously frequenting the public sights,—mixing, as opportunity and introductions served, with more than one of our social circles,—and journalizing her observations the while in the form of letters to friends at home,—with a view to the production, on her return, of another book. This way of travelling in order to print, has grown so common, since writing ceased to be a learned profession, that, although it be far from leading to any high performance in letters, it would be unfair to refuse to any single adventurer whatever sanction may be drawn from example.

In some respects *Mdlle. Lewald* belongs to the better class of speculative tourists. With ready apprehension, robust spirits, and much eagerness for new sensations, she looks about her with open eyes; and sets down what they report with a kind of impulsive sincerity which is often amusing, if not instructive. With entire confidence in her own judgment, she still does not reject such new lights as observation may afford, where her prepossessions are seen to have been founded in positive error; and if she falls into mistakes, it is from precipitation and negligence in detail, or from incapacity to move beyond the egregious system to which she has addicted herself, rather than from wilful prejudice or injustice. In this respect, she must be favourably distinguished from others of the same school: most of whom go abroad with a rabid determination to see nothing but wrong, deceit and imbecility in every principle and constitution which is not framed in obedience to their turbid notions.

To those, indeed, who preach "democratic socialism" as the only code for civil life, and who reject as puerile impostures all systems hitherto included in the idea of Christendom, the condition of society, opinions and government in these islands may well appear strange and provoking:—the rather that the alleged errors current here are obustinate enough to wear a look of prosperity and settlement, which, contrasted with some Continental results, is taken as a practical insult to the new doctrines. It is evidently hard for *Mdlle. Lewald* to reconcile her amazing theories with what she finds in the state of England. But she is too honest to belie what she can see is good merely because it does not square with her philosophy; and she feels kindness and moral worth too heartily to misread them into calculated enormities—

as some travellers of her creed have done—although they spring from modes of existence and opinion entirely blind to certain kinds of illumination. The result, however, is perplexing; and the conflict is too constantly recurring to be overlooked in any account of *Mdlle. Lewald's* diary. It forms the special and often diverting feature of all her views and observations. She has embraced, with more than feminine exaggeration, on a limited stock of acquisitions and with an understanding far from clear, the wildest modern amplifications of Hegel's system,—and cannot even imagine that it is possible for rational beings to abide in any narrower sphere;—her perplexity, therefore, is great on finding people whom she allows to be in many ways intelligent, effectual and amiable, strongly adhering to notions which she has victoriously consigned to the lumber-room. The difference between her candour in appreciating what this process would condemn and her absolute confidence in the infallibility of the process itself, goes on throughout the book, in a manner strange to the philosophic ear, with a constant buzz and murmur,—which some natural good sense and good humour alone prevent from becoming an unpleasant discord.

On the whole, for the time being at least, outward impressions visibly get the upper hand. *Mdlle. Lewald* was kindly treated in London,—and there saw many things which pleased her. Some of our habits which at first seemed strange she learned to endure,—others she was unprejudiced enough to allow worth liking. The activity, neatness, and punctual efficiency of the English produced their usual effect on a candid observer from abroad:—the great results of industry and enterprise, the various life, and the vast scale of its relations in the world's emporium, were felt to take a place of their own among the trophies of human intelligence:—and the verdure of the country around London, the beauty of its parks, and the comeliness of its population were unaffectedly admired, even amidst remembrances of Italy. A liking to the place and to its people, in spite of the drawbacks of a fickle climate, coal smoke, and unphilosophical principles, seems to have grown with experience; and the best proof of *Mdlle. Lewald's* love for London is found less in her confession of reluctance to leave it than in the clear and joyal tone of many of her descriptions.

These, however, will be entertaining to English readers only as showing how scenes and customs familiar to them affect a mind formed in quite a different mould, only partially cultivated, and endowed with perceptions rather ready and robust than exact or delicate. What is seen and said of the ordinary London sights may be more amusing in Germany; but in this department, as indeed in all that concerns matter of fact, a random way of dealing with names, incidents and figures impairs the value of the book as an authority. It abounds with the errors of a rash and confident mind, bare of acquired knowledge, and apt to snatch at glimpses of things, and take them for granted, before they are properly examined or understood. This disadvantage was apparent in the 'Pictures of Italy,'—and it is a constant source of mistake in the journal from London. We shall not take up room here with errata of various kinds which were noted down on going through its contents:—but must plainly say, on sufficient grounds, that

* One case is too dull to be suppressed. It also is a good instance of the random haste above noted. *Mdlle. Lewald* goes to a play founded on Cooper's novel, and cannot understand its title, 'The Wep of Wish-ton-Wish.' Hereupon, without troubling herself to inquire, she settles on the nearest word her stock of English can afford, and boldly writes down 'The Will of the Whiston Wisp,'—which, she informs innocent German readers, means an *ignis fatuus*!

in every class of reference, whether to history, to names of persons and places, to laws or local customs, and to their meaning, where this lay beyond the scope of Mdle. Lewald's personal experience, she is almost always inaccurate. We have indeed rarely seen a work so full of mistakes which ordinary care, or the due regard to obtain accessible information, with a moderate distrust of original guesses, might have avoided.

Among the better parts of the journal one might have hoped to count the sketches of literary and other notables, many of whom the writer had opportunities of seeing. The list, indeed, is inviting enough; but on approaching the portraits, where the names are attached at full length, we find the resemblances far from striking,—and the sketches, even as fancy pictures, of little value. Mdle. Lewald does not excel in a province where her sex has the credit of usually surpassing ours:—she is not skilful in fixing the peculiar traits of a new character. Her descriptions are civil; and she seems to have approached all who had any claim to regard with a sincere wish to view them well and fairly:—but she either was not happy in seizing on their particular expression or has not the art of repeating it on paper. Her *forte* in description lies in a class of subjects where the human interest is less marked, and the figures merely serve to animate the scene,—in a kind of delineation, in short, which answers to the *tableau de genre* in painting.

One of these descriptions we choose because it is less familiar than most of the scenes in London.—

In the evening, in company with two other ladies, an Englishwoman and a German, I attended Louis Blanc's last Lecture on the History of Socialism. It was held in a mean-looking house, in Duke Street, I believe, or somewhere, at all events, in the neighbourhood of Oxford Street. Miss B., although she had been there before, only recognized it on this occasion by the crowd of bearded men in caps and Calabrese hats standing about the door. The lectures had taken place once a fortnight, between nine and ten o'clock in the evening; and as M. Louis Blanc wished to avoid too great a concourse of hearers—which, by-the-by, did not happen to appear—the admission was by gratis tickets only. Through a hall on the ground floor, which was quite dark, through a long passage which was not less obscure than narrow, we arrived at a room built out in the back yard, and generally used as a charity school. The structure differed from anything of the kind I had hitherto seen on this side of the Channel. A single lamp was suspended from the low roof of the apartment. On the wall at its upper end, banners in red had been painted up; on these, in white letters might be read the words "*fraternité, égalité, liberté*." Above them, planted between two red Phrygian caps, was set a smaller flag, with the inscription, "*Second Anniversaire de la Révolution du 24 Février*." The flag, however, was torn or reversed, so that a part of the words were left to be guessed. Shabby, spotted over with dirt, and ornamented with faded garlands, the whole affair, displayed in a place so bare and so sluttish-looking to English eyes, amidst draperies hanging down in rags from walls and ceiling, produced a painful and ugly effect. Before the flags stood a table covered with a green cloth, on which were women's sewing apparatus, toys, &c.; carefully put aside, evidently belonging to the school. Near these stood a broken earthenware jug and a glass of water. The room filled by degrees; its atmosphere on entering had struck us with a dead clammy sensation. There were present some fifteen ladies, and sixty to seventy men; the number of the former, I was told, had at first been much greater. None of the men had that dash of smartness which in general one seldom finds wanting in the French. They all looked somewhat wild; their dress, too, was shabby and disordered. But there were splendid heads in this circle, and hardly one that was insipid or destitute of expression. A painter would have been delighted with them. * * All were terribly

determined faces. The head of one old man who sat opposite to me by the fireplace, and who, without stirring a muscle of his features, nodded slightly at all the most decisive passages of the lecture, I shall not soon forget; nor the expression of another, who strongly resembled *Yorik Sterne* [sic]. Towards the close of the discourse, he listened to Blanc's conclusions on the history of socialism—for ever oppressed, and evermore heaving itself again to the surface—with the cold ironical smile of hatred, which sees in imagination the annihilation of its enemy rise to view like a certain reality. At length Louis Blanc appeared. I had seen him in the March of 1848 at the Luxembourg in his days of power. There was still the same singularly tiny, tidy figure; the same punctiliousness in costume. He wore a blue frock with metal buttons, a high black cravat, such as little men are often fond of, and dark-coloured gloves. His hair is brown, and both his profile, and his whole physiognomy, but especially the motion of the corners of his mouth, have to my eye something of the Jew character. But they say Louis Blanc is no Jew, not even descended from a Jewish family.

The report of the lecture may be passed over. Mdle. Lewald's concluding remarks betray, however, the shock—quite characteristic of her sex and of the nature of her persuasions—which the shorn condition of socialist glory, reduced to a back yard in London, visibly gives to her philosophic faith.—

I need not repeat that I hold it only possible to solve by the principles of socialism those questions on which the possibility of a pacific development of mankind depends; yet the delivery of the doctrine in a place like this, in this style and fashion, had rather a distressing than an elevating effect on me. I could not but think of that far less intellectual, but yet so inspiring, club-debate, in the Conservatoire at Paris, after the Revolution of 1848, at which I had been present. There, the passionate excitement of the speakers had been quite natural; the emotion produced by the circumstances; the straining after applause, the lively gesticulation, were favoured by external circumstances. But here, where a petty audience was assembled, to listen to what was properly no better than a scientific discourse, the enormous and vehement pathos of the speaker produced an effect as if the trumpets of Jericho were being blown to kindle a fire in the kitchen grate. I thought it comical, until I began to feel at last how deeply tragic it was. How far were those transactions in the Conservatoire and the clubs in their proud publicity from this little assemblage of fugitives in a pitiful corner? They were as different as the public judgment of the avenging revolution and conspiracy brooding in secret.

Remembering what Mdle. Lewald, in her dashing way before she knew anything of England, had asserted, of English habits in the chapter of open air exercise,—we give her credit for the openness with which she contradicts her former self, now that she knows a little better. The dash of exaggeration and some incorrectness in details she cannot so easily lay aside.—

How this people live in the open air you may observe in the parks and squares. All day long these are full of human beings; and ladies on foot and on horseback always are among the men. A lady, without a coachman, driving herself in a cab [!], with two horses, nurse and baby at her side; behind her, on the vacant driving seat, a couple of small children whom, in my country, we should still keep under anxious watch in a covered carriage. Young ladies, attended by a groom only, already returning at eleven from the morning ride, come through the parks at a round gallop; a grey-headed family pair you see riding among a group of children—these are the appearances of every day. Women and children are so uncommonly independent that it strikes me as a continual novelty. * * You find here no traces of that artificial incapacity and wilfully prolonged childlikeness in which they endeavour to keep women and children amongst us. An Englishman would think it a poor commendation if he were told of a girl he thought of marrying that she was "a very child;" a kind of praise which still throws the

Germans often enough into raptures. * * A lately-published novel, '*The Initiates*,' [sic] the scene of which is in Munich, and the author a lady, who must have made her observations in the middle strata of society, condemns and lashes the relations of women in Germany with satirical asperity. The author, like most satirists, has fallen into exaggerations which often fall wide of the mark; but there is truth in it. It would do no harm were the novel translated, in order to let our German ladies see in what light they appear to the eyes of English women.

We have more than once noticed a proneness in German writers to accuse us of excess in eating:—a charge to which we are not more liable than our neighbours, but one, above all, which Germans cannot make without impotence, since they habitually eat more (whatever they can), speak and think more about eating, than would generally be endured in England. On this chapter Mdle. Lewald may be heard as a sufficient witness. Her introduction is worth quoting, too.—

I have nowhere seen stouter or healthier-looking children than in England. The way in which they are kept, the great regularity and simplicity of their diet; above all, the extreme attention to cleanliness, cannot be too much praised. The custom of dressing children, in their first infancy, in white only, often ridiculed by women on the Continent as a senseless luxury, is of great use in promoting cleanliness. Even women of narrow means, who have to wash their children's dresses themselves, and do all other tasks of the kind, do not like, because they think it slovenly, to give them dark-coloured woollen clothes, the sole advantage of which is that they conceal dirt. * * Besides this cleanliness, it is certainly well for the children that in English towns they eat wheaten bread only; and that they are not allowed more than three meals a day. * * It is remarkable enough that no nation takes so many meals, or wastes so much time in eating and drinking, as the German, which makes an especial boast of its spiritualism. The Englishman has three meals; the French and Italians, favoured by climate, have rarely more than two; while Germans take at least four: breakfast in the morning, dinner at three, coffee at five, and supper at nine. With us, in East Prussia, they managed to get in a second breakfast in the forenoon; and in rich families another *intermezzo*, towards evening, consisting either of cake and fruit, or of tea; so that, in fact, six meals were taken daily; work was six times interrupted, and three hours at least were consumed in mere feeding, to say nothing of the trouble which this way of living imposed on the lady of the house and on the servants. In my youth, the custom of frequent eating went so far in Prussia, that to every guest who called on a short morning visit they offered refreshments, which were kept ready for such occasions, and could not well be refused. In those days, to pay visits and to spoil your digestion were nearly synonymous in Prussia.

Mdle. Lewald's opinions naturally threw her among the foreign refugees of all nations whom London has sheltered in such numbers since 1848; and her Journal contains many far from inviting traits of their ways of thinking and speaking—of England especially—which are the less likely to be aggravated by the reporter, as she repeats them not without sympathy, even when she cannot herself join them in abusing the only country in Europe where they could live unmolested. We need not blot our pages with specimens of this perversity; but shall give one little passage, displaying some of the difficulties which Polish and other relief committees have often to contend with in secret.—

The other day I passed some hours with Madame P.; on which occasion I witnessed a painful scene with two Hungarians, who had come over, under the absurd illusions, from Hamburg, without a penny, without knowing a word of English;—and were now here, demanding assistance from the Hungarian Committee, of which Herr von Pulszky is chairman. He told them that they could not stay in London: that all he could do was to support them here until the next ship should sail for America, to pay their passage, and besides this give each of them on landing

there two pence, however, had in London; in preparation, in displayed in thought of despair! The stream, of the perplexity of confessed they readily they showed hence and did self-commun with were in Here w Mdle. Le defective i are both m than her indeed lea readers th for which opinion,— that it is and mean truly kn Great Bri go, Mdle a better said as m

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There were two pounds to supply their first wants. They, however, had evidently relied on finding an El Dorado in London; and the mixture of surprise, want, dejection, insolence and shamelessness which they displayed had a very distressing effect on me. I thought of Thiers's phrase—*Impatient comme un Anglais!* These fellows had forgotten the name of their street, of their hotel, in their eagerness and in the perplexity of a long walk through the city. They confessed that they had not a penny left; and while they readily and greedily accepted the offered relief, they showed at the same time such extreme insolence and discontent towards the person who assisted them, that I could not but admire his patience and self-command. It is true that the men he had to deal with were in misery.

Here we must end: with the remark, that Mdlle. Lewald's views of foreign scenes, though defective in some points and perverse in others, are both more readable and better worth reading than her novels. Her volume on London has indeed less attraction of subject for English readers than the pictures of Italy: but the public for which she writes ought to be of a different opinion,—as it is clear, from the strange fancies that it is apt to entertain concerning our ways and means, that there is no part of Europe less truly known to stay-at-home Germans than Great Britain. As far as general impressions go, Mdlle. Lewald's book may aid in promoting a better knowledge:—we would gladly have said as much in favour of particulars.

OUR LIBRARY TABLE.

Exhibition Catalogues.—The second part of the 'Illustrated Official Catalogues' has been issued from the contractors' press. Its subject is "Machinery,"—and it comprises Classes V. to X. of the grand divisions of the collection. The letter-press matter is of the same high character as in the former part, being contributed by men of eminence in their several departments—while the paucity of illustration which we noticed in the last issue is compensated by the abundance of the present. This catalogue is the only one that will at all times have the power of recalling to recollection the most interesting features of the Crystal Palace.

—We have also on our table a new and revised edition of the shilling Catalogue,—a translation of the same into French,—and a more detailed account of the Austrian contributions, with statistics of the manufactures and produce of that contriv.

Hunt's Handbook to the Official Catalogues. Parts I. and II.—Every visitor to the Crystal Palace desirous of making more than a casual acquaintance with its varied treasures must have felt the want of a guide like this, which is at once precise and popular. Unlike the formal 'Catalogue,' the 'Handbook,' so to express ourselves, permeates the edifice, marking the most noticeable groups and giving just so much information about them as enables the spectator to study them with advantage. The present Parts deal with the sections Mining and Metallurgy—Iron—Hardware—Glass—Pottery and Mineral Manufactures—the Medieval Court—Animal and Vegetable Substances used as Food—and Agricultural Implements. Future numbers of the work will deal with Chemistry—Machinery—Art-manufactures—Produce, and so on. When completed the whole will form an excellent popular account and memorial of the Exhibition.

Mr. Knight's Serials.—First among the recent issues of Mr. Knight's press we notice the second volume of his 'National Edition of Shakspeare'—being volume one of the historical plays. The name beauty of type and wealth of pictorial illustration which we commended in our former notice characterize the present volume,—and in these respects the new edition leaves nothing to be desired so far as the mass of readers are concerned. —The *Cyclopaedia of London*, a pictorial guide-book, is now complete in one large volume,—as are also the *Cyclopaedia of the Industry of all Nations* and *Knight's Excursions from London*. These works are peculiarly well timed this season.

when London with its environs and its industry are the uppermost subjects in the thoughts of half Europe and America. — Under the somewhat affected title of *The Traveller's Joy* we have the last-named volume printed in shilling parts: — each part containing the description of a particular locality or localities, and sufficiently small in bulk to be conveniently carried in a reticule or a coat-pocket.

The Eastern Counties Railway Illustrated Guide.—This volume, issued by the railway company whose line it illustrates, may be taken as a guide-book more carefully executed, both as to the literary matter and the art employed on it, than is common in works of its class. Some of the illustrations, though only wood-cuts, have almost the finish of engravings.

The Orbs of Heaven: or, the Planetary and Stellar Worlds—a Popular Exposition of the Great Discoveries and Theories of Modern Astronomy. By O. M. Mitchell.—This work, the production of an American astronomer, forms a part of the series called the 'National Illustrated Library.' It consists of a series of ten lectures, delivered at the College of Cincinnati, the aim of which was to create a popular interest in the lecturer's favourite pursuit.

The First Step in Chemistry. By ROBERT GALLOWAY, F.C.S.—We spoke favourably of Mr. Galloway's work on Qualitative Analysis, and we are no less pleased with his 'First Step.' Many a man may attribute the insufficiency of his progress in any particular study to the fact of his having neglected or jumped over the "first step." Not stooping to learn the signs, he has aimed to grasp the ideas,—forgetting that their correct appreciation can be realized only by a perfect knowledge of those methods of expression which have been adopted by the learned in the science. This author shows the importance of studying the alphabet of science, and points out the best methods. He gives examples which may be regarded as lessons; and from these, with proper attention, the whole system of chemical symbols may be easily learnt and practically applied.

Photogenic Manipulation. By Robert J. Bingham. Eighth edition.—The instructions given in this work are clearly written. They are not always so full as a practical man may desire;—but they are of a very useful character to the amateur who commences his photographic studies without a practical guide. An impression commonly prevails that the whole of the process of photography consists in putting a piece of paper into a camera obscura pointed to the desired object, and taking it out with a picture impressed on it. Far from this being the fact,—the utmost nicety of manipulation is required—the greatest delicacy in the adjustment of proportions is necessary—and every way as much care is demanded as would be bestowed on the production of a water-colour drawing. Hence the necessity of a manipulative guide:—and this to a certain extent Mr. Bingham very satisfactorily supplies.

Rhetorical Readings for Schools. By W. M. Dowall. —This selection of pieces for reading and recitation has at least this great advantage over most of its predecessors—it consists for the greater part of extracts from the works of living writers. The class of books to which it belongs are generally such mere repetitions of each other—the changes from 'Brutus and Cassius' to 'The Corsair' are so very few—that the reader acquires little knowledge of literature from them, and seldom any at all of the literature of our own time. In Mr. M'Dowall's book he will not only find a fair collection of more recent "beauties," but also obtain clues and openings to the standard works from which they have been culled.

Agricultural Distress, its Cause and Remedy; with a Preliminary Inquiry concerning the Civil Law of the Freedom of Private Enterprise. By C. F. Cotterill.—Mr. Cotterill's remedy for agricultural distress is very simple when divested of its technical language. His proposal is, that inasmuch as good harvests lower prices, and thus lead to distress among farmers, Government should step in and purchase at fair market price the surplus produce and

store it away against the season of scarcity. The suggestion is a bold one,—and involves social and economical doctrines to which the "agricultural mind" is hardly prepared to assent, as we fancy.

LIST OF NEW BOOKS

Bohn's Cheap Ser. 1867. "Lartine's Steam-Mass," ed. St. Point, 186d.
Brewer's (Rev. Dr.) Guide to Scientific Knowledge, 6th edit. 2e. gilt.
Campbell's Pleasures of Hope, with Gray and Collins, 2c. gilt.
Carpenter's Mary Reformatory Schools for the Children of Dan-
vers, 1860. 12mo. 2s. 6d. cloth.
Chevallier's Trans. of Epistles of Clement of Rome, and edit. 12a.
Christian Armed (Thel), 6c. 3d. cl.
Church of England's Prayer Book, 18mo. 2s. 6d. cl.
Cousin's Elements of Psychology, trans. by Henry, 3rd edit. 8c. cl.
Croly's (Rev. G.) Scenes from Scripture, with other Poems, 10s. 6d.
Crown's (Rev. J.) Theology, 18mo. 2s. 6d. cl.
De Porquet's Spanish Phrase-Book, 12mo. 3s. 6d. cl.
Donaldson (J.) On Soil and Manures, 12mo. 1s. swd.
Dorset's School Atlas, new edit. with 53 Maps, royal 8vo. 12s. 6d.
Drummond's (Edw.) History of the County of Durham, 5s.
Finlay's (G.) History of Greece, 1804-1840, 9vo. 12s. cl.
Fletcher's The Bible the Great Exhibition of all Nations, 6d.
Flower's (Wm.) The Art of Speaking, 12mo. 1s. 6d. cl.
Händel's Messiah, arranged in Vocal Score, by Dr. Clarke, 7s.
Hitchock's (Dr. E.) The Religion of Geology, &c. crown 8vo. 7s. cl.
Holmes' (John) The Science of Agriculture, 12mo. 1s. 6d. cl.
Le Breton's French Scholar's First Book, 10th edit. 12mo. 3s. cl.
Legend of Genevieve, with Tales and Poems, by Delta, 12mo. 5s. cl.
Lewis' (H. H.) Sonnet at Norwich, with Excursions by Land
and Water, 8vo. 6d. cl. 10s.
Little Henry's Holiday at Great Exhibition, square 16mo. 2s. 6d. cl.
M'Arthur's Scale of Medicines for Mercl and Service, 12mo. 5s. cl.
Mason's (Rev. Wm.) The Four Gospels, 10s. 6d. cl.
Notes and Queries, Vol. 3. 4to. 2s. 6d. cl.
Parby's Brief Sketch of Anglican Church in India, 12mo. 3s. cl.
Parker's (Rev. J.) The Bible and its Relation to the Slave Aboli-
tion, 12mo. 1s. 6d. cl.
Plint's (T.) Crime in England, its Character, &c. 8c. cl.
Popular Introduction to Study of the Bible, 8vo. 2s. 6d. cl.
Popular Introduction to Study and Practice of Chess, post 8vo. 6s.
Richardson's (Rev. J.) The Real Exhibitors Exhibited, for 8c.
Rock's (D.) Hieroglyphs, illustrated, 2nd edit. 8vo. 16s. cl.
Routledge's (J.) The House of Commons, 18mo. 1s. 6d. cl.
Society of Friends' Yearly Meeting, 18mo. 1s. 6d. cl.
Shirley's (A.) Handbook of Furgury House, 8vo. 5s. swd.
Smith's (Rev. J.) The Bible and its Relation to the Slave Aboli-
tion, 12mo. 1s. 6d. cl.
Squire's The Three Pharmacopoeia Translated, royal 8vo. 12s. cl.
Talbot's (Lady T. N.) Vacation Kambles, 3rd edit. 12mo. 3s. cl.
Taylor's (Rev. J.) The Bible and its Relation to the Slave Aboli-
tion, 12mo. 1s. 6d. cl.
Wentley's (Mrs. E. S.) Honour to Labour, a Lay of 1851, 8vo.

PAST AND PRESENT.

LIKE one who has a weary way to go
Across a moor at night, o'er which the wind
Sounds like the voice of his despairing mind,
Haunting the ear in fretful moanings low,—
So I, in the wide night of present woe
No glimmering joy through all the darkness find,
Save thee, long Past, like lights left far behind,
Which, as I wander on, the fainter grow.

Bright days may follow grief as well as night,
Though not a starry thought have we meanwhile;
Many a battle has the heart to fight
With all temptations—much to reconcile;
But Love—its sword—puts all those wrongs to flight
Which make the face the tomb of its own smile.

VINCENT LEIGH HUNT.

NEWLY DISCOVERED MANUSCRIPT COMEDY BY
ANTHONY MUNDAY.

By the kindness of the Hon. E. M. L. Mostyn, M.P., I have in my hands, for publication by the Shakespeare Society, a manuscript comedy entirely in the autograph of our great dramatist's celebrated contemporary Anthony Munday,—who signed his name at the end of it. It was found, recently, amongst the papers and evidences belonging to Mr. Mostyn's family; and I can hardly estimate too highly our obligation to him for allowing us the unrestricted use of such a valuable relic. Munday's reputation was so great at the period when he was a writer for our stage, as to lead a distinguished critic of that day to pronounce him the "best plotter;"—thus, for the construction of a dramatic story placing him above Shakespeare, Marlow, Ben Jonson, Greene, and other theatrical rivals.

How far this character was deserved is another question,—which the discovery of the remarkable literary curiosity in my hands will, at all events, enable us better to determine.

The scene is laid in Chester and its vicinity; the Earl, his Countess, his daughter, his niece, Llew-ellen, Prince of North Wales, the Prince of South Wales, and the Earls of Powis, Pembroke and Morton being principal characters. Respecting all these no difficulty arises; but I want information regarding two other personages who figure even more prominently,—and on whom, in fact, the whole plot depends. I refer to two wizards, or magicians, the one named John-a-Kent and the other John-a-Cumber, who must both have been popular heroes, and (as appears from the manuscript) must have been recorded in ballads and chap-books which have now entirely disappeared.

although doubtless not only in existence, but in high favour with the multitude, at the time when Munday wrote. In the middle of the play before me, one wizard says of the other,—

"Now, John-a-Kent, much have I heard of thee;
Ancient thy fame," &c.

Elsewhere, ballads and songs in which he was celebrated are mentioned; and a promise is held out to him, by one of those who sought his supernatural aid, that if he succeeded the poets of Britain should write in his praise. For many years I have been an earnest inquirer into such matters,—but I never met with any production, either in prose or in poetry, on the subject of John-a-Kent and his magical achievements;—and what I seek to know is, whether any of your readers have been more fortunate?

I am informed by a clergyman of great learning in Herefordshire, who is always ready to communicate his knowledge to any one to whom it may be useful, that there are in his neighbourhood (Ross) traditions current touching the exploits of John-a-Kent; and there is in that part of the country a village called Kentchurch. It seems quite clear that John-a-Kent did not derive his name from our home county; and it is possible that, as his fame is still great in Herefordshire, he may have been originally known as John-a-Kentchurch, although in more recent times the latter portion of his designation appears to have been dropped. This notion is strengthened by the circumstance that in Munday's drama he is spoken of as a native of Wales,—one of the inhabitants of the Principality calling John-a-Kent his "countryman." I am not aware how Kentchurch in Herefordshire obtained its name,—and I have no county-history at hand to refer to on the point.

Respecting John-a-Cumber I am still more in the dark,—and any light that your readers can afford me will be highly acceptable. He is a Scotch wizard who is employed by the Earl of Morton (a noble of that country) to counteract the proceedings of John-a-Kent, and so to work his charms that Morton shall obtain the hand of Sydanen, the daughter of the Prince of North Wales, who, however, is in love with and secretly betrothed to the Prince of South Wales. John-a-Cumber perhaps derived his name from Cumberland:—but I have failed to obtain any trace of him or of his exploits in that part of the kingdom. There is no allusion at poetry of a high order in Munday's manuscript; but excepting some "merriments," (as they are expressly termed) by clowns and morris-dancers, the whole is in blank-verse,—which runs with great facility, as the production of a practised writer. The author began his career as early as 1580,—and continued it through the reign of James I.; but the date at the end of the play in my hands is December 1595,—the most palmy period of our early drama. A number of songs are introduced, which are given to antics and spirits,—and a party is led about by music in the air, as in 'The Tempest.' Certain poems of which Sydanen is the heroine are alluded to in the course of the performance.

As the manuscript is now nearly printed, I am anxious to obtain information for the preface and introductory matter as soon as I can; and perhaps the researches of such of your readers as may be disposed to assist me may be facilitated by mentioning that the plot hinges from first to last on the rivalry of the Prince of South Wales and the Earl of Powis with the Earls of Pembroke and Morton for the hands of Sydanen and Marian. The first of these ladies is daughter to the Prince of North Wales,—and the second to the Earl and Countess of Chester. The Prince of South Wales and Powis resort to John-a-Kent, in order to obtain possession of Sydanen and Marian by magic: on the other hand, Pembroke and Morton (whose suits are favoured by the Earl of Chester) employ John-a-Cumber to counteract and defeat John-a-Kent. The latter is throughout successful; and after various trials of skill and displays of preternatural power, John-a-Cumber is exposed to the ridicule and insults of a number of clowns, who force upon him a motley coat, and make him the fool in their rustic morris-dance.

The piece in several places illustrates in an in-

teresting manner the resources and appliances of our early stage. It is regularly divided into five Acts, although the separate scenes are not marked;—and there are some indications about the manuscript from which we may infer that it had been adapted for private performance,—perhaps at the seat of the Mostyn family.

July 12.

J. PAYNE COLLIER.

THE GREAT INDUSTRIAL EXHIBITION.

THE attractions of the Crystal Palace seem to increase with every week that elapses. On Tuesday last, more than seventy-four thousand persons entered the building; including the Royal Family, several charity schools, and a great number of farm labourers from a distance:—a combination of visitors in itself expressive of one of the great morals of this unprecedented Exhibition. It is now becoming doubtful if the interest will fall off even to the last. A new and powerful inducement will be added ere long in the very circumstance that the Exhibition must finally be closed,—and then the unwearied world of students and sight-seers will pour down with renewed energy to the banks of the Serpentine for the last lingering look at a scene which, from the nature of things, may never be repeated on the same scale of grandeur and completeness—or, if so, probably not in the generation of living men.

The destiny of the Glass Palace is not yet formally settled. Mr. Paxton has petitioned Parliament in favour of his scheme for a winter garden; and, curiously enough, an ex-Chancellor, who last year made himself conspicuous by his opposition to the industrial gathering, was the medium through which Mr. Paxton's petition was presented to the notice of the Peers, accompanied by every variety of commendation. Lord Campbell opposed the idea of retaining the building for any purpose,—an opposition in which he was preceded a few days by Sir Peter Laurie and the Marylebone Vestry. It was, of course, to be expected that the Alderman who has been known by his genius for "putting down" would feel anxious to crown the triumphs of a long magisterial career by putting down the Crystal Palace. But the objections raised by the two sections into which the small minority of the dissatisfied resolves itself have both been answered most completely during the week. The objection said to be felt by those who hold property in the vicinity, Lord Listowel, in a letter to a morning contemporary, sets at rest by stating that he, as the principal owner of property in front of the Crystal Palace, so far from feeling any objection to its retention on that score, strongly approves of the scheme for maintaining it, and is strongly of opinion that it will increase the value of his property. A petition is also, we believe, receiving numerous signatures from the householders in the vicinity to the same effect.—The fears expressed by Lord Campbell that the edifice is "not stable enough to be put to any permanent use" are somewhat curious after the pressure which it has lately resisted so well,—and have been decisively repelled by Mr. Paxton. That gentleman assures us that the sashes will last fifty years without renewal:—the iron-work of course is adapted to last for centuries.—Beyond these faint murmurs of discontent, we hear of no resistance to the general wish. With Government, it is an open question. Lord John Russell has publicly hinted that he waits to be asked in earnest in order to comply. He is, we repeat, under a formal pledge to the House of Commons,—both as Minister and as one of the Royal Commissioners—to see that every particle of glass and iron is removed from Hyde Park in due time; and it is for the public, who extorted that pledge from him last year, to release him from it now. The petition movement makes rapid progress; but we are led to believe that thousands refrain from signing it under the impression that it is a mere matter of form, and that their signatures are of no real value. An impression is widely abroad that the demolition of a structure which is one of the wonders of the world, is a thing not to be dreamt of,—that no effort can be necessary for the preservation of an edifice ready for so many national uses

in the long future. By this means, the very strength of the claim may become fatal to its admission. We seriously warn all our readers against any such confidence. The petition is in this case the only recognized mode of expressing public opinion. If it be not signed extensively, the Crystal Palace will come down as certainly as it now stands in the Park. The beauty of the building, the abstract reasons for retaining it in its present form, the folly of wasting so much good material, will not ensure it a single day's grace from the officials and legalists who have power over its fate. A body of churchmen have found out a very curious argument against the structure:—it is, it seems, immoral. The public will no doubt be puzzled;—but there must be no doubt as to the wide character of the answer. Neither must there be any delay. In about three weeks, Parliament will be prorogued. It will not assemble again, in the ordinary course of events, until the early part of next year. In the interval, the Crystal Palace must be dealt with in one fashion or another. Before the Members separate for the holidays, such an expression of opinion should be obtained from them as will warrant the Minister in considering himself free from the obligation contracted last year, for the purpose of meeting an unreasonable outcry.

The Westminster Committee and some others, we observe, have in their petition declined to express any premature opinion as to the uses to which the Crystal Palace may be applied in future. This is prudent. Many will probably object to Mr. Paxton's fancy for an "Italian climate," who would yet desire to have the building converted into a winter garden, a museum of art and science, or a collection of natural produce. The simple thing is, to ask just now for the retention of the building, unfettered by any condition. On that point nearly all suffrages are united. Its future uses may be safely discussed hereafter. Its great characteristic is, that it is fit for anything. On the principle of Mrs. Glasse, we would say—first secure the Crystal Palace:—and this can be most readily done by the petitioners not requiring Parliament to commit itself beforehand to any definite and fixed proposal.

OUR WEEKLY GOSSIP.

LAST week the question of the Borneo massacre was again brought before the House of Commons; but, strange to say, the friends of the Rajah of Sarawak, instead of courting inquiry and offering every facility for arriving at the exact truth of the case, as they were bound to do in justice to their client, resisted the proposed investigation, and with the aid of Government caused the appointment of a commission of inquiry to be rejected by a large majority. This vote most seriously damages the Rajah's reputation. For ourselves, we have hitherto abstained from giving any opinion on the merits of the case. More than once we have said that it had a bad look, and stood in much need of explanation. For this explanation we have waited patiently; and to be told at length that it will not be given, is to have the conclusion strongly suggested to our minds that, in the belief of the parties most concerned, the affair will not bear inquiry. If this suggestion be a false one, the fault lies with Sir J. Brooke's friends. The facts alleged against him are too grave to be passed by in silence. On a summer night in 1849 an English squadron under his orders attacked the prahus of a people with whom we, as a nation, were wholly at peace. In four hours more than five hundred human beings were shot or sunk—at so much a head of reward,—and more than two thousand were driven into the woods, where many of them actually died of starvation. It is confessed that this was a slaughter, not a battle. The Dyaks had evidently no serious means of defence: for in all that night of fire and blood not a single Englishman was killed. The only plea for this tremendous exercise of power is, the assertion that the murdered men were pirates: an assertion denied by many authorities supposed to be competent. It may be questioned whether any set of circumstances can justify a wholesale and profitable slaughter like this;—but at any rate there are a variety of points on which the conscience of the

public must be enlightened before any portion of that public will acquit its author of the terrible *grand facie* case against him. Were the Dyaks, not only habitual pirates, but piratically engaged upon the destroyer thus swept down on them? Was their chastisement necessary for the protection of others? Were there no means short of extermination which might have been made efficient for the purpose? In a word, can it be shown that a deed which looks so inhuman as that which was enacted in the interest of humanity? To all these questions Sir J. Brooke and his friends should be most anxious to give satisfactory answers. The attempt to stifle inquiry is suggestive of conclusions under the terrible weight of which so many should bear to live. If the Rajah quits this country without seeking an opportunity to free himself from the charges, justly or unjustly, preferred against him in the courts of European opinion, he must be content to abide that sort of adverse judgment which is usually given in cases by default.

The "bill of fare" for the Bristol Meeting of the Archaeological Institute is not unpromising. The corporation and the clergy are both active and willing,—and the several committees are working in the spirit which commands success. Prof. Willis is to explain Wells Cathedral,—and Mr. George Godwin to point out the beauties and peculiarities of St. Mary Redcliffe. Mr. Hallam will preside over the section of History,—Lord Talbot de Malahide over that of Antiquities,—and Mr. J. H. Markland over that of Architecture. Mr. Hill, late of Christ Church, will superintend the excursions,—and another Mr. Hill the several convivial arrangements. Mr. Cockerell will read his long-promised elucidation of the sculptures on the west front of Wells Cathedral,—the Chevalier Bunsen will communicate "a paper," and Colonel Rawlinson "something" about the last of Mr. Layard's discoveries. The proposed excursions include Thornbury, Berkeley, and the lovely glens of Blaize Castle—the seat of Mr. Harford, the President of the meeting. The temporary museum of the Institute will be opened at the Bishop's College, in Park Street.

It is with pleasure we record that Mrs. Jameson's name has been added to the pension list—we believe for 100*l.* a-year. As one who, by her many careful works in the cause of the beautiful and poetical arts, has done much to adorn female authorship,—this recognition of Mrs. Jameson is especially welcome as occurring in the reign of a female sovereign.

The daily papers announce the death, on the 12th inst., of Mr. Beaufoy,—whose name, as our readers know, has long been identified with acts of liberality in the cause of education. It is not many months since we had to record the latest of these in favour of the City of London School:—and his will is said to evince a further regard for the same important subject. His library was large and good,—but its destination is at present unknown. The City of London Library was named at one time as its final place of deposit. Mr. Beaufoy was in his sixty-sixth year.

The annual meeting of the Ray Society was held at Ipswich during the meeting of the British Association. In the absence of Prof. Bell, the President, Prof. Henslow took the chair. Although the meeting was held early in the morning, there was a large attendance,—evidencing the interest taken in the Society. The Report showed an increase of funds, but indicated a slight decrease of members. The works brought out last year were, the Second Volume of Agassiz's 'Zoological and Geological Bibliography,' and a fifth Part, containing fifteen illustrations, of the work of Alder and Hancock on the Nudibranchiate Mollusca. For the present year, the Council have already published the Rev. W. A. Leighton's work on the British Angiocarpous Lichens, with thirty illustrations,—and will shortly issue the first Part of an illustrated work, by Mr. Charles Darwin, on the family of Cirripedes. Amongst the illustrated works announced for future publication are, a Monograph of the British Freshwater Zoophytes, by Prof. Allman, and a Monograph on the British species of the family of Spiders, by Messrs. Black-

well and Templeton. The Chairman, in his address, stated that he hoped the beautiful drawings illustrative of Dr. T. Williams's Report on the present state of our knowledge of Annelida would be published by the Ray Society with an extended description of the species. For this purpose the Ray Society would require extra assistance;—and he hoped not only that new members would join the Society, but that special contributions would be made by naturalists, to enable it to publish these important contributions to British Natural History.

In confirmation of the announcement made to the British Association at Ipswich, by Sir R. I. Murchison—as reported by us last week—on the prospect of a satisfactory completion of the Ordnance Survey of Scotland, as urged by that body,—we now hear that the Committee of the House of Commons appointed to inquire into the subject have sent in their report, in which they recommend that the whole of the kingdom be mapped on the one-inch scale. By this, the sum of nearly half a million will be saved,—and the whole map of North Britain will be completed in ten years, instead of fifty, as was anticipated on the old plan.

In reply to a question put to that end, Lord Palmerston has stated in the House of Commons that on receiving an invitation from France, Government has agreed to send agents to assist at the Conference which, as our readers will remember, is about to be held at Paris on the subject of quarantine regulations.—We have since seen it stated that Dr. Sutherland, the medical inspector of the General Board of Health, has been appointed to attend the Congress.

We are informed that Mr. Jerdan—for so many years the Editor of our contemporary, the *Literary Gazette*,—is engaged in preparing his Reminiscences and Correspondence, &c. during the last forty years for publication. Mr. Jerdan's long connexion with the literary circles of the metropolis must have given him the means of accumulating a large body of interesting material,—the value of which will of course depend on the spirit and manner in which it is used.

The *North British Mail* reports that the spectre so well known as the haunting genius of the Brocken, has made a trip into Scotland,—and has recently been seen in the neighbourhood of Hawick under conditions similar to those which attend its appearance in its native region of the Hartz Mountains. The phantom, it is said, was observed by a farmer early in the morning. "His attention," says the *Mail*, "was arrested by a light cloud of pale mist, of remarkable form, being perfectly circular, slowly uprising from the neighbouring valley. The sun was shining brightly around him from the other side; and as the cloud gradually floated up, still retaining its form, which was very like that of the halo often observed round the moon, he found that it presented an inner circle, much smaller but well-defined, and containing, as in a frame, a human figure of most colossal proportions. He saluted the spectre with a bow, which was returned by the airy phantom with the utmost promptitude. He then walked away for a little,—and, on returning, found the shadow still visible, which continued to bow and otherwise imitate every motion he made, thus proving it to be a reflection of his own form in the cloud.—Owing, however, to the difference of height between the Hawick Hills and the Hartz Mountains, and to the comparative absence of that vast surface of reflecting mist which prevails about the latter, the new spectre loses in magnitude and dignity by comparison with the German ghost.

The foundation stone of a new Industrial Training Institution for the counties of Essex and Hertford has just been laid at Hockerville. The object of the founders of these schools is, the more efficient training of young women for the offices of teachers and housewives. The amount of money required to give practical efficiency to the institution is estimated at 9,000*l.*, towards which sum 7,500*l.* have been already collected,—including 300*l.* from Government and 600*l.* from the National Society.

In speaking of a suggestion, made by Mr. Rowland Hill several years ago, for converting the iron

posts which stand at the corners of our streets into post-offices for the deposit of letters—a suggestion not adopted in this country, but since taken up in Belgium, as may be seen by an exemplar in the Crystal Palace,—Mr. Henry Cole informed his audience at Liverpool the other day that an association has been formed with the object of diffusing a desire in all countries for a better and cheaper system of intercommunication than now exists. Baron Dupin, M. Wolowski, the French ambassador, MM. de Bourg and Von Viebahn, Lord Ashburton, and Mr. William Brown are said to be among its members. There is a wide field of action before such an association, and many difficulties will present themselves in this as in every other path of reform; but the age which has seen such a gathering of nations as will make the year 1851 for ever memorable in history need not despair of any good cause coming to fruition in due time.

The *Liverpool Times* says that the late Earl of Derby has left his superb collection of animals and birds to the Queen, if Her Majesty will please to accept them. In the event of Her Majesty not desiring to avail herself of the bequest, the specimens are to be given to the Zoological Society, for the enrichment of their gardens in Regent's Park. The late Earl possessed a very large collection of the skins of animals and birds prepared for stuffing. These have been bequeathed to the town of Liverpool.

ROYAL ACADEMY OF ARTS, TRAFALGAR SQUARE.
The EXHIBITION of the ROYAL ACADEMY is NOW OPEN.—Admission (from Eight o'clock till Seven). 1*l.*; Catalogue, 1*l.* JOHN PRESCOTT KNIGHT, R.A., Secy.

BRITISH INSTITUTION, PALL MALL.
THE GALLERY, with a Collection of PICTURES by ANCIENT MASTERS and deceased BRITISH ARTISTS, is OPEN DAILY from Ten to Six.—Admission, 1*l.*; Catalogue, 1*l.* GEORGE NICOL, Secretary.

SOCIETY OF PAINTERS IN WATER-COLOURS.—The FORTY-SEVENTH ANNUAL EXHIBITION is NOW OPEN, at their Gallery, 3, Pall Mall East, from Nine till Dusk.—Admission, 1*l.*; Catalogue, 6*d.* GEORGE FAIRF, Secretary.

AMATEUR EXHIBITION.—THE DRAWINGS, &c. by ENGLISH AMATEURS are NOW ON VIEW, for a short period only, at the Gallery, No. 121, Pall Mall (opposite the Opera Colonnade).—Open daily, from Ten till Dusk.—Admission, 1*l.*; Catalogue, 6*d.*

THE ORIGINAL DIORAMA, Regent's Park.—NOW EXHIBITING. Two highly interesting Pictures, each 70 feet broad and 50 feet high, representing MOUNT AETNA, in Sicily, during an Eruption; and the ROYAL CASTLE of STOLZENFELS on the Rhine, with various effects. Admission to both Pictures only One Shilling.—Children under twelve years, half-price. Open from Ten till Six.

GALLERY OF ILLUSTRATION, 14, Regent Street.—The DIORAMA of the OVERLAND MAIL to INDIA, exhibiting Southampton, the Bay of Biscay, Cintra, the Tagus, Tarifa, Gibraltar, Malta, Algiers, Alexandria, Cairo, Suez, the Red Sea, Aden, Ceylon, Madras, Calcutta, and the magnificent Maelstrom. "The Taj Mahal" the exterior by moonlight, the beautiful gateway, and the gorgeous interior, lighted by crystal and golden lamps, is NOW OPEN DAILY, at Twelve, Three and Eight o'clock.—Admission, 1*l.*, 5*l.* 6*d.* and 3*l.* Doors open half-an-hour before each representation.

THE GREAT EXHIBITION AND THE ROYAL POLYTECHNIC INSTITUTION.—ALL THE MOST INTERESTING DEPOSITS at the GREAT EXHIBITION will, in turn, be LECTURED ON at the ROYAL POLYTECHNIC INSTITUTION.—THE PRESENT LECTURES are on the CHEMISTRY of the MINERALS and CRYSTALS at the Great Exhibition, beginning with DIAMONDS, RUBIES and PEARLS, by J. H. Pepper, Esq.—POPULAR LECTURE by Dr. Bachoffner on the forthcoming TOTAL ECLIPSE of the SUN.—THE ROTATION of the EARTH, exhibited by FOUCAULT'S Experiments.—The great economy of Cooking by GAS explained.—A LECTURE on the HISTORY of the HARP, by Frederick Chatterton, Esq., with Vocal Illustrations.—TWO SERIES OF SPECTACULAR DISSOLVING VIEWS.—DIVER and DIVING BELLS, &c. &c.—Admission, 1*l.*; Schools, Half-price.—Open daily from half-past Ten till Five, and every evening from Seven till half-past Ten.

The forthcoming TOTAL ECLIPSE of the SUN, exhibited at the ROYAL POLYTECHNIC INSTITUTION.—A POPULAR LECTURE on this subject, ILLUSTRATED by a series of interesting DIAGRAMS, is given by Dr. Bachoffner, daily at three, and every evening at nine o'clock, in addition to all the other SCIENTIFIC LECTURES, EXHIBITIONS, &c.

MEETING FOR THE ENSUING WEEK.
TUES. Zoological, &c.—Scientific Business.

FINE ARTS

THE DUKE OF BEDFORD'S PICTURES AT HIS TOWN HOUSE.

FOLLOWING the excellent example set by the noble owner of Bridgewater House, the Duke of Bedford, as our readers have been already told, has given to the public interested and knowing in the cause of Fine Art the *entrée* to inspect his small but very choice collection of pictures,—chiefly of the Dutch school. They are for the

most part in fine preservation, and not so crowded on the walls as to interfere with the effects of one another. Two pictures of the Venetian school attract attention in the first room which is entered. These are, 'Herodias presenting the head of John the Baptist to her Father,' by Giorgione—very rich in its colour, the characters being evidently portraits, and the costumes gorgeous,—and, a Study of 'Two Dogs,' by Titian. The latter are wondrously executed,—with the feeling of a philosopher who has not limited himself to representing the superficial character of their coats, but has imparted meaning to his canvas by touches of life, muscular action, and expression in the most highly perfected condition under which imitation is understood. All is the sensible rendering of truth, without affectation on the one hand or epigrammatic sentiment on the other. There is here, by Jan Steen, a small and chaste picture of 'Twelfth Night,' as it was then celebrated among his countrymen. There are also, a highly-finished 'Interior,' by Bassen and Polemberg—the architecture very carefully drawn; a superior picture by Andrew Werf, of the Nativity; a fine 'Karl du Jardin'; a very richly-coloured scene by Isaac Ostade—'Travellers at an Inn Door'; a very good little picture of a 'Virgin and Child' by Schidone; a very picturesque Landscape by Ruysdael, in which a bridge is the conspicuous object,—very rich in colour and simple and broad in effect; a pair, representing 'A Calm—with Sunset,' and 'A Storm at Sea,' by Vernet,—much beyond the average of this master's merits; a coldly classical and academic composition by Nicolo Poussin, of 'Moses treading on the Crown of Pharaoh,'—a very good specimen of one of the earlier styles of the master,—the growth of whose practice is so well seen in the excellent arrangement of his works made at Dulwich College,—a curious picture by Gilpin the horse-painter, of 'Gulliver amongst the Houyounims'; a 'Ruined Bridge,' with figures fording a River, by John Van Asselyn,—of sunny effect and good gradation, with that resemblance to the style of Berghem which this artist's productions usually exhibit; and two Landscapes by the Cavalier Fidanza,—one a small rocky subject, the other a larger and more romantic one—bearing no slight correspondence with the manner of Salvator and of Borgognone. The above are the most conspicuous pictures in the first drawing-room. A clever copy in this room, by Mr. G. Lambert, of Gaspar Poussin, ought not to pass unnoticed. It is a careful reading of the original.

In the middle Drawing-room, the Cuyps, though small, are of great excellence. The little study of 'A Chesnut Horse' is very rich in colour, highly finished, and simple in effect. Another, of 'A Cavalier, with a Bay and a White Horse,' is admirable for its style and for the unaffectedness of its execution. So is its pendant, the 'Interior of a Riding School,' with horses and figures. The shadow tones in this are of surpassing excellence. Nor is 'The Bœuf Gras,' or prize ox, decorated with garlands, without the stamp of this artist's peculiar hand:—bating, however, a certain foxiness, the result of an unsparing employment of red pigment. Two charming little Ruysdaels—a 'Landscape, with Ruins,' and a 'Morning Scene'—are in this same apartment. A very superior picture for the master entitled 'Dutch Courtship,' by Adrian Brouwer, impresses at first sight with its resemblance to Teniers. Two life-sized half figures—a study of 'A Little Girl,' by Rembrandt, and another of 'A Boy and Pigeon,' by F. Mola—are remarkable for various renderings of similar facts, and for the respective excellencies of the artists. The 'Village Feast and Dance' in this room, said to be by Teniers, is of inferior quality to another that will presently be named. In its present state, if it has not been retouched, they who are intimate with the painter's works will be slow to ascribe it to him.

A remarkable picture by P. Wouwermans is 'The Pont Neuf, at Paris,' with the variety of incidents and characters occupying it. It has more than usual of the artist's vigour, and less than usual of his ineffective finish. A pair of small landscapes, by Salvator Rosa, betray once more his impatient and romantic spirit. "Dashed"

is the word truly significant of such execution. A vigorously coloured sketch is that by Rubens of 'The Death of Hippolytus':—a study for a larger picture. Over this, Van der Capella's 'River View, with Boats and Figures,' offers a striking contrast, by its quietness and chasteness. A little picture, by Rottenhamer, of four boys, represented as embodying the four elements, has much merit for truth and fancy. An interior of a 'Poulterer's Shop,' by Zörg, though carefully drawn and highly elaborated, has the drawback of lack of interest usual with subjects of this class. A View, possibly of one of the Sabine mountain cities, is the subject of an excellent picture by Gaspar Poussin. In this room will also be found an early picture from the easel of Sir G. Hayter, of 'The Tribute Money':—a composition of five half-length figures, the natural size, executed in a large style, possessing much individual character in the heads, liberal in the handling, and imbued with the spirit of the old masters.

In the front Drawing-room is a 'Village Fête' by David Teniers, into which the artist has introduced the portraits of himself and his family. The touch and spirit of the master will be here readily discerned. Full of incident and of figures, the varieties of character are discriminated with great success,—and what pertains to technicals is achieved with a command of such means as in his department the artist was unequalled for. The pendant to this—the 'Interior of a Picture Gallery'—gave him fair scope for that power in the imitation of the several schools which he has sufficiently evinced in his pastiches.

The two Paul Potters are of great beauty. 'Going out Hawking,' despite of a cold and chilly aspect, is full of elegant details and of spirit. For beauty of elaboration and greater richness the larger picture—'Landscape and Cattle'—better satisfies us. This is, indeed, a conscientious work. No one particle of it but has had the most scrupulous attention,—and no one element that has not been considered with reference to a harmonious whole.

What space and atmosphere are to be found in the 'View of a Distant Country,'—in the foreground of which Cuyp has represented himself sketching the subject of this picture, while his servant, mounted, waits by him with the horse whose saddle he has himself just quitted! To enlarge here on the 'Frost Scene,' by the same painter, where the fishermen are breaking the ice to withdraw their nets, and where the usual accompaniments of the season are given with his own exclusive excellence, would be superfluous. So lately seen at the British Institution, it is fresh in the memory of the amateur. Two pictures by Andrew Both—'The Village Dentist' and 'The Ballad Singer'—are full of character, and executed in a distinct and forcible style. The large 'Landscape' by the brothers Andrew and John Both exemplifies with what perfect accord they wrought together. Among those Italian scenes which they delighted to render, they have never succeeded more thoroughly than here in imparting to their canvas the glow of sunlight, or the grace and truth of the foliage which dances against and is relieved from it.

The 'Sunset' by Claude—a very fine example—is too highly placed to be properly appreciated. It exhibits one of the very few treatments by this artist in which variety is produced without the aid of architectural accessory.—With the mention of a gallery picture by Guercino—a 'Dead Christ'—an average specimen of the master,—of some heads in *graviolle* by Vandyke,—and of some family miniatures,—we close our enumeration of the pictures to which we could get access on the day of our visit to the collection.

FINE-ART GOSSIP.—Mr. Hertz of Great Marlborough Street has re-arranged his noble collection of Assyrian, Babylonian, Egyptian, Greek, Etruscan, Roman, Indian, Peruvian and Mexican antiquities,—and, with a liberality worthy of more general imitation, has thrown them open to antiquaries and artists,—indeed to all who can make any proper claim to inspect them. We had seen a portion of Mr. Hertz's collection on a previous occasion,—but

till our recent examination had formed only a slight idea of the importance of the whole. All his examples are genuine, and many are of the utmost beauty and value as works of Art. The collection was formed by its proprietor with a view, he tells us, to illustrate "the rise, progress and decline of the Fine Arts, and to obtain satisfactory corroboration of the veracity of ancient traditions respecting the religious habits, arts, and employments of by-gone nations—and the achievements of illustrious men and heroes." Mr. Hertz is justly proud of his collection, and more especially of his figure of the Athlete in nero-antico and his beautiful Venus in bronze found in Asia Minor, and regarded as a choice example of Greek art. The Athlete was found in the Villa Negroni, and is fully described in the 'Monumenti Antichi Inediti,' by Guastini, Roma, 1788. Mr. Hertz has printed a capital classified catalogue of his collection. The Americans are, we hear, in treaty for the purchase of the entire collection. A better foundation for a New York Museum it will not be easy to obtain.

That future ages may have some better notion of the glories and contents of the Crystal Palace than words and a few engravings however elaborate can supply, our three great architectural artists, Mr. David Roberts, Mr. Haghe, and Mr. Nash have undertaken to make fifty highly-finished drawings of the more striking portions of the great building. Prince Albert has given his "imprimatur" to the work: and the drawings, as soon as finished, will be transferred to stone, and published at a price that will enable "the many" to procure such pleasing—and, as they are sure to be in such hands—artistic memorials of so memorable an Exhibition.

The well-known picture by Benjamin West of 'Penn's Treaty with the Indians' was sold last week at Christie & Manson's for 441*l*. Though neither the figure nor the bearing of Penn are very good—and though the characteristics of the houses are untrue to the period,—there are yet so much merit in the general composition and such an air of truth throughout, that the picture has been deservedly a favourite beyond Quaker circles. It is long since we had seen it, and we must own this time to some disappointment at its tone and colour.—At the same sale (that of Mr. Penn of Stoke Pogeis) a large family picture by Sir Joshua Reynolds, with some of his infantine beauties in many parts, was sold for 367*l*. 10*s*.; and a view of Corfe Castle from the Sea, by J. M. W. Turner—more like a Richard Wilson—fetched 480*l*. The West has been engraved by Hall,—the Sir Joshua by Charles Turner. The rest of the Stoke Pogeis pictures were poor,—and many of the portraits were only feeble copies.

The portrait of Thomas Campbell, the poet, painted for the late Mr. Thomson of Clithero by Sir Thomas Lawrence, was sold to Mr. Gambart at Sotheby & Wilkinson's on Thursday last for 60 guineas,—and the fine marble bust of the same poet by Mr. Bailey, R.A., also executed for Mr. Thomson, was sold to Mr. Moxon of Dover Street for 10*l*. Lawrence's head is clever and like—but the hand is evaded; and the right ear is a common dædal colour,—not as Vandyck drew the ear of Sydneys, all flesh and gristle and good drawing. The bust is one of Mr. Bailey's best.—At the same sale (the next day) the marble bust of Martin Foulkes by Roubiliac realized 20*l*. 10*s*.,—and the marble bust of Lord Brougham by Bailey was thought to sell cheap for 6*l*. 12*s*. 6*d*. The styles of the two artists are very unlike—yet both works have great merit. What character and skill in execution and minuteness of detail in Roubiliac's Martin Foulkes,—what happy portraiture and skill in generalizing in Mr. Bailey's Lord Brougham!

The artist and amateur interested in what is doing in Art in London will do well to drop in at Messrs. Graves's, in Pall Mall, and see 'The Arctic Council,' painted by Mr. Stephen Pearce for Mr. Barrow, and Mr. Pyne's charming series of views of our English Lakes,—a commission to Mr. Pyne from Mr. Grundy of Manchester.

This week we have to record the death of an artist whose name suggests its own connexion with one of the remarkable discoveries of the age. M. Daguerre, who has died at Brie, a village near

Paris was distinguished early in life as a scene-painter at the Parisian theatres. Later he set up his dioramas of churches, Alpine scenery, &c. in the Regent's Park. These pictures, as many of our readers will remember, were remarkable for the almost magical illusion produced by the arrangement of their lights and shadows. Afterwards, he succeeded in fixing the images of the camera obscura; thus helping to originate a new art,—and connecting, as we have said, his name with an important incident in the history of science.—The French papers also report the death of another artist of talent, M. Charles Ramelet.

From Berlin, it is stated, that a colossal equestrian statue, in bronze, of King Frederick William the Third, modelled by M. Kiss, the sculptor of the famous 'Amazon' group,—and intended for the town of Königsberg,—is now exhibiting to the public of Berlin in the grand court of the Royal Foundry.

MUSIC AND THE DRAMA

ROYAL ITALIAN OPERA, COVENT GARDEN.
LES HUGUENOTS.—On TUESDAY NEXT, July 22, will be performed Meyerbeer's Grand Opera, 'LES HUGUENOTS.' The principal characters by Madame Grisi, Madame Guisot, Mlle. Angeli, Mlle. Cotti, Herr Formes, Signor Tagliabue, Signor Polonini, Signor Ferrari, Signor Bonini, Signor Soli, Signor Sordi and Signor Maria.

GRAND EXTRA NIGHT.—IL FLAUTO MAGICO.—On THURSDAY NEXT, July 24, a GRAND COINED ENTERTAINMENT will take place, which will embrace a most extraordinary assemblage of Artists. The performance will commence with the First Act of Bellini's Opera, 'Norma.' Madame Grisi; Adalgisa, Mlle. Morra; Elia, Signor Tambril; Orovoso, Herr Formes. To conclude with the Fourth Time, Meyerbeer's Grand Opera, 'LES HUGUENOTS.' The complete Opera.—The principal characters by Madame Viardot, Madame Castellani, Mlle. Angeli, Mlle. Morra, Mlle. Bertrand, Mlle. Vintate, Herr Formes, Signor Stigelli, Signor Soli, Signor Bonini, Signor Polonini, Signor Ronconi and Signor Maria. Commence at Eight. Boxes, Stalls and Tickets to be had at the Theatre.

THE NEW GRAND OPERA OF 'SAPPHO,' the Music by M. GOUNOD, is in rehearsal and will be speedily produced.

ROYAL ITALIAN OPERA.—'Il Flauto Magico.'—Let us redeem our pledge in offering a remark or two on this opera as a work which has still to be rightly appreciated. Besides the infrequency of its performance, many reasons could be given for the craving of interest with which amateurs, both gay and grave, have been accustomed to regard it. Its melodies have been popular with most of us since the earliest days when we began to touch the keys of piano or "German flute":—hence the work has a charm of association totally apart from its intrinsic merits. On the other hand, both its subject and its music have been objects of grave examination and interest to some of the greatest European thinkers. Goethe bestowed thoughts and pains on a second part to Shikaneder's *libretto*:—and among the things said by— or said for—Beethoven, is his dictum that 'Die Zauberflöte' was the one opera by Mozart written in the true German style. Such a definition, we presume, was intended to convey that the work is purer and less conventional in its musical expression than its brother operas. Now—no blasphemy against either Mozart or Beethoven—we cannot think this to be the case,—as the part of the *Queen of Night* (written notoriously to display an exceptional singer) would of itself sufficiently attest. Tried by the above-mentioned standard, 'Figaro' is Mozart's most German opera,—only falling short of the highest individuality and beauty where the *libretto* fell off:—whereas 'Die Zauberflöte,' according to our judgment, should be cited as an example of the skill with which a master of his art, when commissioned to write for a spectacle-theatre, could so exalt his subject and clothe it with beauty as to make a mere piece of entangled nonsense pass for something mystical and profound.

† A modicum of the time expended in searching for the meaning of the story of 'Die Zauberflöte,' if devoted to considering its history, would, we think, have been well bestowed. But it is easy and delightful to dive for meanings,—whereas to rest content in facts, when the same are not picturesque, requires some courage and calmness of mind. 'Die Zauberflöte' was written for one of those minor theatres of Vienna the staple performances of which have long been magic tales and melo-dramatic stories, aucced with broad pantomime,—the idea of which, originally derived from Italy, was most perfectly wrought out in the 'Fiabe' of Carlo Goldoni. Of such a theatre as this Shikaneder was manager

This hypothesis accepted, it seems to us that the nature of Mozart's occupation—or the state of his health and fortunes—pressed upon the composer when he was writing 'Die Zauberflöte.' Treating the music as mere music, rich though it be in its outpourings of melody and in its displays of the ripest science, it is not free from alternate heaviness and triviality. In the former charge the Temple-music, or professedly serious portion of the opera, is not included: though parts of this, even, are open to question,—as, for instance, the propriety of the prelude and accompaniment to the *Corale* by the two armed men,—which on the stage sound ineffective, because too scholastic.—But the *finales* and concerted pieces are, for Mozart, weak and monotonous: to illustrate, not comparable in ingenuity and variety to the concerted music in his less-esteemed opera 'Cosi fan tutte'—displaying, we must think, the wearied hand and the languid mind of the death-stricken poet. There is melancholy when merriment was meant,—there is a monotony of colour in their beauty which at last becomes cloying. In only one instance—the *trio* 'Gia fan ritorno'—is the fantastic element developed. Such character in music as the *dramatis personæ* possess lies betwixt Priest *Sarastro* and Bird-catcher *Papageno*:—and even the latter, with his farcical doings on bell and fife, is, musically, far less droll than *Osmyn* in 'Il Seraglio'—than *Masetto* in 'Don Giovanni.'—Till we reach the comicalities of the air 'Papageno' and the Duet following, such gaiety as the part possesses must belong as much to the actor personating it as to the artless ease and beauty of the tunes, which give them a home in every ear,—association doing the rest.

We are not decrying 'Il Flauto Magico' because we rate it as one of the least dramatic compositions of Mozart,—because we state our conviction that viewed in one light it is too mosaic, in another too monochromatic, to rank high among the first class of creations in a world where development of idea is as indispensable as variety of colour. Performed without stage accessories, the music is felt to be heavy. The nobility of its serious portions, however, and the distinction of style in its sentimental pieces, will always make it a treasure to the most refined amateurs: while the ease and artlessness of its popular melodies will as long invest them with the charm of those familiar tunes and tales which we love we know not why. But the treasure belongs too much to the kingdom of reverie, and the love is too largely mixed up with memories for the one to bear frequent exposure to the prosaic mediocrities of the best stage executions, and for the other to rivet the large new public that has not been brought up on 'Away with Melancholy' and 'The manly Heart.'

In consequence of Mlle. Zerr's indisposition, the part of *The Queen of Night* was on Tuesday sung—and very well sung—by Miss Louisa Pyne. This young Lady, by no arts besides the honest and progressive practice of her art, is rising among the singers of European reputation—steadily and surely.

HER MAJESTY'S THEATRE.—Rossini's lovely opera 'La Cenerentola' was revived on Saturday evening for the re-appearance of Mlle. Alboni, who returns to us in her best looks and in her most brilliant executive force:—how excellent that is, the *Athenæum* need not remind its readers,—having bridged over some of the difficulties formerly interposing between herself and *prima-donna*-hood, and which we are bound in justice to remind our readers we hardly expected that she could bridge over. There seems, however, less disparity betwixt the different registers of her voice than formerly; and though that which has been gained in equality may prove to have been lost in power, the general evenness must still be a change acceptable to every lover of music who is unable to dispense with a

and first buffoon,—and naturally enough did his best to fill his story of an enchanted Princess, her true Knight, and his cowardly Squire, with as many marvels as a head stupid and imitative could crowd together.—Surely this no-meaning is a better solution for the no-meaning of the *libretto* than such recalcitrant speculations as would credit a *Grimaldi* (to bring the matter home to English apprehension) with the will seriously to illustrate Freemasonry or any other "great idea" (so runs the jargon) in a *Pantomime* or an *Easter-piece*.

level execution for the sake of a few flourishes upwards or downwards or a few explosions of sound. Mlle. Alboni was welcomed with deserved cordiality:—but she was foiled and framed by strange playmates. Accustomed as the world is to a voiceless *Clorinda* and a tuneless *Thiabe*, Mlle. Feller and Madame Grimaldi must be signalized as having been pre-eminently bad in the parts of the sisters "cruel and bold." Signor Calzolari's *Prince* is one of his best characters; Signor Ferranti's *Dandini* is of inferior quality, whether as regards acting or singing.

The execution of 'Le Nozze di Figaro' recently revived at *Her Majesty's Theatre* is not creditable: its general style (if style it can be called) being that of people wearied, disheartened or over-confident.—Signor Lablache and Madame Sontag making the exceptions. The lady's singing of Mozart, we repeat, should be studied by every vocalist before the opportunity of taking so precious a lesson passes away. The cast contains several novelties. Madame Fiorentini takes the part of the *Countess*,—in which she is inexpressive, and not always perfect in its music. Mlle. Cruvelli's *Cherubino* is a mistake as a piece of acting—but we can allow for mistakes of reading and execution, in a part so novel in style as this must be to her. We cannot, however, reconcile ourselves to Mlle. Cruvelli's manner of singing, nor admit her perpetual recourse to tones of every different quality as warrantable. In her songs hardly one phrase was vocally produced in the same manner from beginning to end:—her articulation, too, suffers from her habit of dragging her voice. In short, pretension without finish, and restlessness without expression, are the first characters of the new *Cherubino*; and for the maintenance of her popularity, Mlle. Cruvelli does well to fall back on 'Ernani,'—which opera, we observe, is to be given this evening. Signor Ferranti is a dry and unsatisfactory *Figaro*. The love for Mozart must be as strong as we know it to be in England, to hold out against trials so hard as it has here been called on to encounter.

Our contemporaries advertise that Madame Barbieri Nini has arrived in town, and will shortly make her appearance.—'La Corbeille d'Oranges' is to be given on Tuesday next.

PRINCESS'S.—Mr. and Mrs. Kean's benefit on Monday was numerously attended:—a result owing no doubt in part to the excellent manner in which their management during the past season has been conducted. A fair proportion of new pieces have been produced,—and the *mise en scène* in all instances has been carefully attended to. The pieces for performance on the occasion of the benefit were, 'The Gamester' and 'The Honeymoon':—Mr. and Mrs. Kean, of course, supporting in each the leading parts.

OLYMPIC.—Miss Faucit has been performing here the *Lady of Lyons* and *Juliet*. It is to be regretted that this fine actress has no permanent engagement in London.—On Tuesday a three-act melo-drama, called 'The Chateau of Valenza,' was produced:—a kind of piece now deservedly obsolete. A worse specimen of the sort than this was never placed on the stage.

MUSICAL AND DRAMATIC GOSSIP.—Efforts are in progress throughout Germany to complete the monument to Weber for the erection of which subscriptions were opened and concerts given throughout Europe some years since. The statue, by Prof. Rietschel, who was an intimate friend of the composer, is to be placed opposite to the Theatre Royal at Dresden.

The Italian journals state that a comic opera, by maestro Dalla Baratta, 'Il Cuoco di Parigi,' has pleased the public of Brescia mightily.

The five-act work by M. Halévy, which is to be produced at the *Académie Royale* during the coming season is entitled 'Le Juif Errant.' The *Gazette Musicale* informs us that M. Massol is to sustain a part in this opera,—also that Mlle. di Grun, from Dresden, has been engaged to appear in it; and further, mysteriously promises a *mise en scène*, terrestrial and celestial, which is to outdo every

spectacle that has hitherto been attempted even in Paris.

We can here only announce the return to England of Madame Clara Novello. Of her re-appearance in 'The Messiah' at Exeter Hall last night we may have a word to say next week.—A performance of unaccompanied music by Mr. Hullah's chorus was given on Wednesday last.

The Crystal Palace, among other good things, seems likely to furnish the musical Londoner with the long-wanted opportunity of hearing organ playing. Out of the anxieties of rival manufacturers, home and foreign, springs a good to Art totally unexpected,—like other results of the Great Exhibition.—We see by an advertisement that Messrs. Gray and Davison open their organ—the one at the extreme end of the nave in the American quarter—to all players, home and foreign.

It is said that 'Fridolin,' the *Contata* by Mr. Mori brought forward by Mr. Hullah at St. Martin's Hall, will shortly be performed at Worcester.

TWENTY-FIRST MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[From our own Correspondents.]

TUESDAY.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

Prof. STOKES presented a report as to the state of the experiments to be made at Kew to determine the index of friction in different gases,—for which a sum of 175*l.* had been allotted from the Government grant of 1851. He stated that in consequence of the shortness of time which has elapsed since the sum was assigned, but little progress has yet been made. The pendulums have, however, been ordered, as well as some trifling additions to the vacuum apparatus formerly employed by Col. Sabine; and he is ready to commence operations as soon as the apparatus is complete.

'On a General Theory of Gases,' by Mr. J. J. WATERSTON, Bombay.—The author deduces the properties of gases, with respect to heat and elasticity, from a peculiar form of the theory which regards heat as consisting in small but rapid motions of the particles of matter.

'General View of the Results of the Hypothesis of Molecular Vortices, as applied to the Theory of Elasticity and Heat,' by Mr. W. J. M. RANKINE.—The subject of this communication was very closely related to that of Mr. Waterston. Its object was, to lay before the Association a summary of the results of a peculiar mode of conceiving that theory which regards the elasticity connected with heat as the effect of the centrifugal force of small molecular motions,—a theory which has long existed as a conjecture, and may now be considered as proved by Mr. Joule's experiments on the mutual convertibility of heat, and the visible forms of mechanical power.

'On the Effect of the Telescopic Funnel of Steam Ships on their Compasses,' by Capt. JOHNSON, R.N.—This communication was made in a letter to Col. Sabine, of which the following extract gives the substance.—"You will perceive by the deviation tables of H.M.S.S. *Ajax* and *Blenheim*," that if no heed were taken of the deviation when regulating the ship's course, the most serious consequences might be apprehended. Taking as an example the case of the *Ajax*, with the funnel up, running upon an easterly course at the rate of 9 knots per hour, it will be seen that in 24 hours only, if no allowance were made for deviation, the ship would be 50 miles out of the reckoning,—and with the funnel down the error would be increased to 72 miles in the same space of time,—while the case of the *Blenheim* would not be very different. In the humid and misty atmosphere which so often prevails on the coasts of the British Isles, the fact that a ship such as the *Ajax*, if steered a compass course—but without allowing for deviation—for mid-channel between Ushant and the Lizard, would, instead thereof, be running for the dangers about Ushant with the funnel up,—and with it down be so far out of the proper course as to be advancing towards the rocks south of Douarnenez Bay,—is, I conceive, a proper example to show the importance of attending to the effects produced on

the compass, and the two conditions of the funnels of steam-ships. But besides the practical question, I wish you to bring under notice the following results which I obtained with reference to the effect of hollow iron cylinders upon the compass, when placed inside of each other,—the object being to ascertain whether the whole difference of deviation under the two conditions of these telescopic funnels was due to the difference of their elevation and depression only, or whether a portion of the said differences was attributable to the induced magnetism of the separate parts of the funnel, when lowered, acting upon each other. As it would have required more time than could be afforded to hoist the parts of these huge funnels in and out of the ship while the requisite succession of observations were made, I procured three hollow iron cylinders of smaller dimensions, their several diameters being such as to admit of one cylinder being placed inside of another, and leaving a space of about one-eighth of an inch between their surfaces. Having placed a standard compass on one of the pedestals in the observatory, and ascertained the magnetic meridian for the moment by the collimator, the largest or external iron cylinder (No. 1) was brought in, and placed to the eastward of the compass, the principal mass of the cylinder being below the level of the needle and card, and its upper end being 2½ inches above that level. By this means a deflexion or deviation of 10° 10' was produced, the north end of the needle being drawn that amount to the eastward of the correct magnetic north. Cylinder No. 2 was next placed inside of No. 1, when the deviation was increased to 12° 15'. Cylinder No. 3 was then placed inside of No. 2, and the deviation was again increased to 14° 13½', the north end of the needle being drawn to the eastward in each case. Hansteen's Magnetic Intensity Instrument was then placed with the centre of its needle (as nearly as I could adjust it) in a similar position to that which the centre of the compass had occupied, and the following results were obtained:—

	Time of 100 vibrations starting from an arc of 18°.
Previous to the cylinders being brought into the observatory	6' 57"
No. 1 cylinder in place	6' 51"
No. 2 cylinder in place inside of No. 1	6' 47"
No. 3 cylinder in place inside of No. 2	6' 45"

The Intensity Instrument being removed, a dipping needle was then employed, and the following are the results of the observations:—

	Mean of Readings. Dip.
Previous to the cylinders being brought into the observatory	68° 37'
No. 1 cylinder placed to the south of the instrument	70° 10'
No. 2 cylinder in place inside of No. 1	70° 27'
No. 3 cylinder in place inside of No. 2	70° 37'

The conclusion to be deduced from all these observations appears to be, that to the induced magnetism of the surfaces of each cylinder acting upon each other is due a portion of the deviation; and reasoning by analogy a similar deduction is applicable to the telescopic funnels of steam-ships."

'On the Influence of the Earth's Magnetism on the Pendulum of Foucault,' by Prof. WALKER.

Prof. CHEVALLIER gave a brief explanation of the motion of the pendulum as indicating the diurnal motion of the earth; and exhibited a little instrument for its illustration, which had been recently registered.

Dr. TYNDALL stated that since it was well known that revolving motions excited electric currents, and since it had been lately discovered by Prof. Faraday that the entire mass of the oxygen of the atmosphere was subject to such important diamagnetic changes,—perhaps it might be found that some electric current, excited by the motion of the pendulum itself, may be the origin of the curious oscillation of the revolving motion of the pendulum as it approached the magnetic meridian. He had shown experiments to members of the Section in this very room in which the vibratory motion of pieces of metal was instantaneously arrested, as if by magic, in opposition to their inertia by the diamagnetic action caused by even two small cells of Grove's battery.—Prof. WARTMANN stated that the idea had occurred to him of the possibility of electric currents being excited by the motion of a pendulum, and that he had insulated a long pendulum, and made the prolongation of the wire suspending the pendulum one

electrode, and caused the pendulum itself, each vibration, to complete and break the circuit,—but a delicate electrometer interposed in the circuit was not found to be in any degree affected.

'On a New Method of determining the Quantity of Hygrometric Moisture in the Air,' by Dr. ANDREWS.—In the absence of Dr. Andrews, Prof. STEVENS made this communication. Dr. Andrews had found on trial that several powders when well dried would rapidly, effectually and completely take up the moisture of damp air passed through them, as effectually as the fused chloride of calcium, which is too troublesome in the making, preserving and using for common use. For instance, he had found that well dried black oxide of manganese—and a still more universally obtainable substance, powdered alabaster or sulphate of lime, as dried and prepared by plasterers or by those who make casts—being inclosed in a small syphon, a measured bulk of air passed through either, at a very quick or at the slowest rate, would be so effectually deprived of all its hygrometric moisture that another syphon filled with coarser fragments of fused chloride of calcium gained a weight sensible to a balance which turned with the one-thousandth part of a grain,—the measured portion of damp air being in succession drawn through the syphon containing the alabaster and that containing the fused chloride of calcium. The apparatus contrived by Dr. Andrews—a drawing of which Prof. STEVENS exhibited and explained—consisted of a gasometer whose bell was attached as a counterpoise to the weight of a Dutch clock sufficiently heavy to work it. By this a measured volume of air was drawn through a tube leading from the open air through the syphon containing the absorbent powder, which was attached to it by collars of caoutchouc, so that after the air had passed through, the syphon could be readily detached, weighed, and the gain of weight by the absorption of the moisture thus determined. In this way he was able in widely various hygrometric states of the air to test the indications of Daniel's and other hygrometers,—to determine the correct relation between the depression of the wet bulb and the dew point,—and even to use the apparatus itself as a simple integrating hygrometer by which the total quantity of vapour contained in a measured volume of air drawn through the apparatus, say during twelve hours, at a uniform rate, may be actually determined by weight.

'An Account of the Astronomical Instruments in the Great Exhibition,' by Dr. BATEMAN.—Dr. Bateman having been appointed chairman of the Committee for arranging that portion of the articles in Class X., which relates more especially to the science of astronomy, it occurred to him that it might serve a useful end to lay before the British Association an account of the astronomical instruments in the Great Exhibition. He, therefore, wrote to all the contributors, as far as he could ascertain their addresses, requesting them to favour him with a description of their respective instruments; stating whether there was anything new or peculiar in their construction or application, and in what manner they were calculated to aid in the progress or illustration of the science. The substance of these answers was condensed in this communication, which was very voluminous and elaborate; and the author classified its subjects under the following heads.—1. Telescopes, lenses, and telescope stands; 2. Sextants and nautical instruments; 3. Chronometers and instruments for measuring time; 4. Globes and maps; 5. Orrenes, planetariums, and other similar instruments; 6. Magic lanterns and miscellaneous.—THE SECRETARY read at length some selected examples taken from the first three heads.

'On Air Bubbles formed in Water,' by Dr. TYNDALL.—He showed by a few simple experiments that water falling in a continuous column, which it always does for a certain distance, into another vessel of water, produces neither air bubbles nor sound,—but that as soon as the distance is so increased as that the end of the column becomes broken into drops both air bubbles and sounds, varying from the hum of the cascade and of the ripple to the roar of the cataract and of the breaker, were produced. That the end of the column of issuing water, although it only seems to waver in consequence of a delusion arising from the effect of the rapid succession on the retina, was really composed of separate drops, the author

* These ships mount 58 guns each, and have engines of 450 horse-power.

mid was proved by a very pretty experiment,—viz., by placing behind it a platinum wire kept glowing by a galvanic battery. The continuous part of the wire was hidden; but the portion behind the wavering end he said became separated into dots of light and spaces hidden by the drops. He also showed that lateral motions of bodies in water, when rapid enough, caused both bubbles and sounds; and he accounted for their production in both cases by the surface closing over the pit formed by the descending drops or laterally moving body:—the inclosed air is then carried forward, and at length ascending to the surface bursts with the explosion which causes the sounds.

'On an Experiment in Thermo-Electricity,' by Prof. MAGNUS, communicated by Dr. TYNDALL.—Dr. Tyndall, in order to make the experiment intelligible, first explained the thermo-electric battery of bismuth and antimony and its mode of action and affecting the delicate galvanometer under changes of temperature. He then exhibited a coil of brass wire so wound round a wooden broad cross, as that alternate lengths of the wire, which had been softened and left hard, had the junctions of the hard and soft parts all arranged at one side and in a line. This coil of wire being then made, the circuit connecting the poles of the galvanometer, the heat of the fingers when placed along the junction of the hard and soft parts caused a very large and instant deviation of the needle of the declinometer; but when the fingers were placed either on the hard parts or on the soft no motion of the galvanometer needle took place.

'On some Appearances peculiar to Sunbeams,' by Mr. TWISING.—The author made his communication under the following heads:—1st. Condition of the cloud which gives rise to the appearance of luminous beams. 2nd. State of the atmosphere. 3rd. Luminous rays are formed, chiefly in the lower regions of the atmosphere. 4th. They are, nevertheless, observed at times at very great elevations since they occur as much as twenty minutes after sunset. 5th. Peculiar perspective effects which are connected with the appearance of luminous rays, as they occasionally seem to extend in the most opposite directions, although their real direction is the same. 6th. Reference to a belt of exceedingly dark shadow which surrounds the luminous margin of clouds. It differs completely from the usual appearance of solar radiation. Hypothetical explanation of this peculiar effect.

'Memoranda of Hail Storms in India from June 1850 to May 1851,' communicated by Dr. BUIST.

'Abstract of Meteorological Observations made at Fateguoh for 1850,' by Dr. BUIST.

'Sketch of the Climate of Western India,' by Dr. BUIST.

'On Storms,' by Mr. R. RUSSELL.—This communication was accompanied by a diagram exhibiting in one view the leading meteorological observations made at Helston in Cornwall, 106 feet above the sea;—Highfield Observatory, Nottingham, 103 feet above the sea;—Whitehaven in Cumberland and Darlue in Fifeshire, 250 feet above the sea, on the days between the 17th and 27th of August 1850:—within which period a violent storm occurred at the three latter places, which was scarcely felt at Helston.

The Section then adjourned to the next year's meeting at Belfast.

In our report last week of the proceedings of this Section for Monday, a mistake has been made by which the designations of two different instruments have been run together to the destruction of both. The passage at page 730, col. 1, beginning at l. 69 should have stood as follows:—'Description of a Hygrometric Sliding Rule for showing the Results of Observations with the Dry and Wet Bulb Hygrometer.' Also 'Description of a Sliding Rule for converting Readings of the Horizontal and Vertical Force Magnetometers into variations of Dip and Total Force,' by Mr. J. WELSH.

MONDAY.

SECTION B.—CHEMISTRY—INCLUDING ITS APPLICATION TO AGRICULTURE AND THE ARTS.

Dr. Daubeny in the chair.

'On the Cause which maintains Bodies in the Spheroidal State, beyond the Sphere of Physico-chemical Activity,' by M. BOUTIGNY.—M. Boutigny referred to his former communications and well-known experiments on the peculiar state induced in liquids when in contact with very hot metals, and

regretted he had not the means for exhibiting the experiments, as they required apparatus he had not at command in the Section, such as for the application of the spheroidal state of water to the purposes of the steam-engine. He referred to the experiments first shown at Cambridge and their extension since to explain some of the effects of ancient oracles. Alluding to the disputed points in the explanation of his experiments as to the repulsion of metals and fluids, and whether the effects were really entirely or not to be attributed to the properties of the thin stratum of vapour, Prof. Boutigny proceeded to show by experiment that when platinum wire was coiled up in the form of a flat spiral and made hot and either or alcohol fluid placed on it, in the spheroidal state the liquid would not pass through between the spaces, while the vapour readily did so.

A conversation ensued on the subject of M. Boutigny's showing the capability of the human hand to pass through red-hot molten metal without injury; and by the prompt kindness of Messrs. Ransomes & May the experiment was arranged to take place at 7 o'clock in the evening. Accordingly, at that hour the members of the Chemical Section had the opportunity of seeing M. Boutigny pass his hand through the stream of liquid red-hot iron as it passed from the furnace, and afterwards scooping out portions of iron from the casting ladle, until the fluid sunk to the mere red-hot fluid state, when danger might be apprehended from the falling of the temperature causing the iron to adhere.

'On the Chemical Nomenclature of Organic Compounds,' by Dr. DAUBENY.—The object of this paper was to point out certain inconsistencies and anomalies in the received method of classifying and naming organic compounds, and thus, if possible, to induce chemists to agree on a set of rules, by adhering to which the compositions and relations of a body might be inferred from the termination of the word designating it. The Professor first alluded to the nomenclature proposed by Gmelin, which imposed new names upon all known elements, and thus was at least as difficult as the acquisition of an entirely new language. Not conceiving that so intricate a system would ever come into vogue, he proceeded to point out the meaning belonging to the several terminations attached by eminent chemists to the names of bodies of their own discovery, as indicative of the class to which they belonged, and likewise their method of denoting the composition of a body by constructing for it a name made up of those expressive of its several ingredients. In order to introduce somewhat more of precision into this method of nomenclature, and also to render it, in some instances, more convenient and more applicable to daily use, the Professor submitted to the Section the following suggestions:—1. That the term *hydrocarbon*, when used to designate a class, should be confined to the compound radicals; the essential oils being regarded either in the light of hydurets, from their containing an atom of hydrogen in a different state of combination from the rest, or of aldehydes, from their tendency to form acids by the addition of two atoms of oxygen.—2. That the term *ether*, as designating a class, should be restricted to the oxides of the respective compound radicals; and that the "compound ethers" should be named on the same principle that salts are, by terms expressive of their respective acids and bases.—3. That the term *cetone* should be retained for bodies produced from acids by the abstraction of a single atom of carbonic acid.—4. And that of *glyceride* for fixed oils.—5. That the termination *yle* for Liebig's compound radicals and *ene* or *en* for carbohydrates with equal atoms of the two elements, be retained.—6. That to the vegetable alkalies produced by natural processes, the termination *ine* should be confined; and to those artificially produced by substitution of hydrocarbons for the hydrogen atoms of ammonia that of *amine*.—7. That the names proposed by Hoffman for the alkaloïds of his own discovery should be abbreviated by introducing only the first syllable of the name expressive of each of the hydrocarbons present, by which expedient the length of the word so compounded need rarely exceed six syllables.—8. That the termination *amide* should be retained merely for bodies formed by the replacement of the hydrogen atoms when they are not *alkalial*; and that the terms *imide* and *nitrile* should

be no longer employed.—9. That the termination *am*, occasionally used for ammonia compounds be discarded.—10. That the termination *al* for aldehyde compounds should be henceforward employed with more precision.—11. That the termination *thane* should be used for those ether compounds only into which an acid does not enter.—12. That the termination *an* should be employed in a more definite sense than heretofore.—13. That the terminations *one* and *ole* should be respectively confined, the former to bodies produced from acids by the abstraction of one atom of carbonic acid, and the second by that of two atoms; so that the latter term should not be adopted to indicate the essential oils.—14. That where a name expressive of the composition of a body cannot be constructed, one should be formed having reference to some obvious physical or chemical property, and of which the Greek or Latin root can be readily apprehended. Such barbarous and unmeaning terms, therefore, as mercaptan, kapnomor, pittacal, parabanic acid, &c., should be rejected from the vocabulary of science.—15. That bodies produced by natural processes should, in general, bear a name recalling the source from whence they are derived.—16. and lastly, That although bodies belonging to the same class or type should in general have the same termination, yet, that where a substance already familiar to us is shown to belong to a particular type, its designation ought not in that case to be altered,—so as to bring it into harmony with the other bodies with which it may be thus associated.—The above suggestions are thrown out rather as embodying the views of the most eminent chemists, so far as these views can be inferred from their practice, than as expressive of any new methods or arrangements conceived by the author of the paper, and in the former light are submitted to the Chemical Section, with the hope that the whole subject may be taken into consideration by a committee selected from that body, to whose suggestions on such a subject men of science in general might be disposed to defer.

Dr. WHEWELL and others made remarks on the state of the changes in the names of different substances, according to the views of investigators; some compounds having been favoured with five or six different names in a few years, according to the sources whence it was derived, or the analogies of it to a large class of bodies.—A committee, as we have elsewhere reported, was appointed at the last meeting of the Committee of Recommendations, who are to report on the subject of the chemical nomenclature of organic compounds.—Prof. Daubeny's paper will appear in the volume of the British Association for the year; and copies will be furnished to the contributors to the chemical literature of nomenclature and others.

'On some Theoretical and Practical Methods of determining the Calorific Efficiency of Coals,' by Prof. W. R. JOHNSON, of Washington, U.S.—Prof. Johnson spoke of these investigations having been commenced prior to the experiments made in England for the Government and East India Company, and carried on for some years; but that he was not capable of going into the subject on the present occasion with justice and satisfaction to himself, as the books and reports he had brought for learned Societies and for this purpose, had been stopped at Southampton, and they had not yet been received by him.

'On the Products of the Action of Heat on Animal Substances,' by Dr. T. ANDERSON.—Dr. Anderson having discovered picoline in coal tar, was led to investigate the well known and peculiar fetid oil called bone oil, and to obtain the best results, operated in the last experiment upon 250 gallons of the distilled bone oil, and discovered at least three different series of bases in the oil. In the first he had established the existence of the bodies called Methylamine, Ethylamine, Butylamine, Petiline, and probably others; in the second series, Picoline, and other bodies of which it is the type. The third series is very remarkable, and all the members of it are characterized by decomposing by heat and excess of acid into bases of the picoline series and a remarkable and peculiar red or orange coloured resinous substance. This extensive investigation was not yet concluded; but the oil, besides these bases, contained benzole and the nitriles of some of the fatty acids.

'On the Action of Superheated Steam upon

Organic Bodies, by Prof. SCHARLING, of Copenhagen.—This communication was read by Dr. T. Anderson, who exhibited a drawing of apparatus employed.

In the discussion on these communications, relating as they do not only to the purification of substances, but suggesting new modes of manufacturing (such as the production of carbon for gunpowder by high-pressure steam), Mr. MALLET alluded to the astonishing effects of high pressure in the peat process. It appears that in Prussia, steam at 60 lb. pressure is used and passed through hot pipes to obtain at least 600° of heat, and is then thrown into compressed peat, where it produces the effect of a "fiery sponge," robbing the peat of water, carbonizing the material, and effecting the complete distillation of many substances. The texture of the peat is so far changed and peculiar that it is rendered pyrophoric and takes fire by exposure to air, and it is necessary to cool down the charcoal in an atmosphere of steam.

'On Agricultural Chemistry, especially in relation to the Mineral Theory of Baron Liebig,' by Mr. J. B. LAWES and Dr. J. H. GILBERT.—[The reading of this paper commenced on Monday, and was resumed on Tuesday, with a discussion].—Mr. Pusey had, in a recent article in the *Agricultural Journal*, on the progress of Agriculture during the last eight years, quoted the experiments of Mr. Lawes and Dr. Gilbert as being conclusive as against the "Mineral Theory" of Baron Liebig, which asserts that the crops on the farm rise and fall according to the supply within the soil of the mineral constituents indicated by an analysis of the ashes of the plant. To these observations of Mr. Pusey, Baron Liebig has replied at some length in the new edition of his 'Letters on Chemistry,' just published, and in doing so, has asserted that the experiments alluded to are without value, and that the statements of the authors could only be made in ignorance of the rationale of agricultural practices on the large scale. The authors have therefore given in the present paper an outline of their investigations in Agricultural Chemistry; comprising an extensive series of experiments in the field on the growth of the principal crops entering into a rotation, as well as on the chemistry of the feeding of animals, and that of the functional actions of plants generally, in relation to the soil and atmosphere: in connexion with all of which branches much laboratory labour has constantly been in progress since the commencement of the experiments themselves in 1843. The results selected by Mr. Lawes and Dr. Gilbert, in justification and illustration of their views, were those of the field experiments on wheat, grown continuously on a previously exhausted soil for the last eight years, and in each season, by means of many chemical manures by the side always of one or more plots unmanured, and one manured continuously by farm-yard manure. Some of the results thus obtained were illustrated by a diagram, from which it appeared that mineral manures had scarcely increased the produce at all when used alone, whilst the effects of ammoniacal salts were very marked, even when repeated year after year on the same space of ground from which the entire crop—corn and straw—had been removed. Indeed, in this way, a produce had been attained even in the sixth and seventh succeeding years of the experiment, exceeding by nearly two-thirds that from the unmanured plot. It was then shown, that the mineral constituents of the soil continued to be in excess, relatively to the nitrogen available for them from natural sources. The history of several plots was then traced down to the last harvest (1850), and it was argued that the statements assailed by Liebig, viz. that ammonia was specially adapted as a manure for wheat, was fully borne out when speaking of agriculture as generally practised in Great Britain. In other words, that in practice it was the defect of nitrogen rather than of the mineral constituents that fixed the limit to our produce of corn. The authors next called attention to the fact of the exhalation of nitrogen by growing plants, as proved by the experiments of De Saussure, Daubeny and Draper, and they referred to some experiments of their own, with the view of showing the probability that there is more of the nitrogen derived from manure given off during the growth of cereal grains than by leguminous and other crops; and hence might be explained the great demand upon

nitrogenous manures observed in the growth of grain. The authors suggested that here was an important field of study, and that we have in the facts alluded to much that should lead us to suppose that the success of a rotation of crops depends on the degree in which the restoration of the balance of the organic constituents of crops was attained by its means, rather than on that of their mineral constituents, according to the theory of Liebig; whilst the means adopted to secure the former were always attended with a sufficient supply of the latter. Again, Prof. Liebig has quoted the processes of fallowing and liming, as being in their known results inconsistent with the views of Mr. Lawes and Dr. Gilbert; but these gentlemen considered that the experiments of Mulder and of Mr. Way on the properties of soils justified them in supposing that the processes of fallowing and liming owed their efficacy more to the accumulation of nitrogen in the soil from natural sources than to that of available mineral constituents: the latter did, however, undoubtedly thus accumulate by those processes, and this fact should give us more confidence in views which, on independent evidence, supposed that they were not so easily liable to be found in defect in relation to other necessary supplies. It was next shown, by reference to what happens in actual practice as generally followed in Great Britain, where corn and meat constitute almost the exclusive exports of the farm, that the mineral constituents of the crops, taken collectively,—that is, as shown by the analysis of their ashes, could not be considered as exhausted: of these, however, phosphoric acid was lost to the farm in much larger proportion than the alkalis; whilst the latter would generally, by the combined agencies of disintegration of the native soil, and import in cattle food, be liable to diminution in but a very insignificant degree, if not in some cases to accumulation. Practical agriculture had, indeed, decided that phosphoric acid must be returned to the land from sources external to the farm itself,—viz. by bones, guano, or other means. But, on the other hand, artificial alkaline manures had generally been found to fail in effect. Indeed, taking into careful consideration the tendency of all experience in practical agriculture, as well as the collective results of a most laborious experimental investigation of the subject, both in the field and in the laboratory, it was the authors' deliberate opinion that the analysis of the crop is no direct guide whatever as to the nature of the manure required to be provided in the ordinary course of agriculture, from sources extraneous to the home manures of the farm,—that is to say, by artificial manures. Reviewing, then, the actual facts of practical agriculture, the authors could not agree with Baron Liebig when he asserted that our grand object should be to attain an artificial mixture to substitute for farm-yard manure, which he admitted to be the universal food of plants. The very practice of agriculture itself, as followed in this country, necessitates the production of farm-yard manure, and all our calculations should be made on the supposition of its use.

'On Gambogic Acid and the Gambogiates, and their use in Artistic Painting,' by Dr. SCOFFER.—He described the composition of Gamboge as a gum-resin, and that some years since he had proposed the use of a preparation of it for oil-painting. For this purpose he had employed methods to get rid of the gum. To obtain the gambogic acid, he recommended ether to be employed when the colouring matter is dissolved, and by distillation the ether is given off,—the last portions, however, are retained with so much force that a temperature of 230° or 240° obtained, and this would destroy the colour, unless water was employed with the ether. About 1-20th of water was previously added to the ethereal solution of the pigment, or gambogic acid. The gambogiates of lime and other bases were under examination; the gambogiate of iron, however, produced a rich brown, like asphaltum, but capable of more richness and certainty in oil:—from the trials made, the yellow and brown seemed to be permanent colours, having useful properties as oil colours. He also thought they might be usefully employed in fresco.

'On the Dangers of the Mercurial Vapours in the Daguerreotype Process, and the means to obviate the same,' by M. CLAUDET.—In practice it is found

that in that process where heat and mercury are required to bring out the image, so much vapour of mercury was produced as seriously to affect the health of the operators. M. Claudet described the means of protection,—by a closet of iron with shutters, and a pipe connected with the chimney, to take off the vapours, and prevent them coming into the rooms. To lessen the chance of undue temperature, he recommended a water bath, heated by a gas flame;—and thus the operator had the whole under control, without heat or vapour in the room.

'On the Use of a Polygon to ascertain the Intensity of the Light at different angles in the Photographic Room,' by M. CLAUDET.—This was of wood; and enabled the operator to ascertain by the appearance of the different facets when daguerreotypied the strength of light and shade in different parts of the room,—and so to place the sitter in the best positions, and regulate the light with shades and screens.

In the discussion that ensued, and referring to the difficulty of obtaining good daguerreotypes in the torrid zone, M. Claudet stated that one of the causes of different results in this country depended on the state of aqueous vapour in the atmosphere; and he believed the failure of the process in many countries depended on the quantity of vapour held in the air. Where this varied there would be variable results; and the weather at one period, at the beginning or close of day, might be found very favourable or quite unfavourable from this cause. Good daguerreotypes had been taken in climates reported incapable of allowing successful results; and this he explained by reference to the quantities of moisture that the air contained.

'On the Construction and Principles of M. Pulvermacher's Patent Portable Chain Batteries for Electric purposes, with some of their Effects,' by Mr. WALLEN.

'Report on Sulphuric Acid in the Air and Water of Towns,' by Dr. R. A. SMITH.—The experiments and observations of the Report were generally directed to the existence and quantity of sulphuric acid in the atmosphere of large towns,—and from the examples taken in and near Manchester. Dr. Smith, admitting that sulphurous acid was first produced by combustion, considered it was oxidized and carried down by rain as sulphuric acid, and usually associated with ammonia. Liebig had proved carbonate of ammonia to be present in the air. Dr. Smith found that rain-water was alkaline until boiling concentrated the sulphuric acid. Rain-water collected six miles from Manchester was such that it could not be used agreeably for drinking. He considers the soil as a great disinfectant of the rainwaters,—removing the acids, the ammonia, and the oily and carbonaceous matters, that give unpleasant qualities to rain-water. Rain collected even in the fields on concentration had so much oily matter developed by evaporation, that suspicion of accidental impurity from the vessels employed was only removed by the employment of platinum vessels. Specimens of air taken in the summers of 1850 and 1851 from the densest parts of Manchester were compared with air from the country. The quantity of sulphuric acid, estimated in a tabular form, ranged from 0.4 to 1.06 grains to the gallon,—the chlorine was from 0.396 to 0.530 to the gallon,—while the total quantity of inorganic matter in rain-water was from 0.8 to 3 grains to the gallon. Dr. Smith alluded to the growth of conferva, and the production of some living bodies, and made observations on the office of rain-water thus clearing the air of matters affecting the health of man.

TUESDAY.

SECTION C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

'Explication d'un Tableau de l'Étude Méthodique de la Terre et du Sol,' by M. CONSTANT PRÉVOST.—Mr. Prestwich, at the request of the President, explained that M. Prévost's object was to introduce uniformity into geological nomenclature, and also to give a more distinct meaning to scientific terms. At present each country had its own nomenclature, and many of the terms in use were invented at a time when the science was one of imagination. M. Prévost had always advocated the view that causes now in action were sufficient to account for all the phenomena of the older rocks; at the same time he started with the supposition that the earth was originally in

an extremely heated condition. Round this heated globe a thin crust (soil) was formed, and gradually thickened by sedimentary deposits going on in all times, whilst volcanic outbreaks were continually occurring from the interior. M. Prévost divided all the strata into systems or series (*terrains*), representing periods of time, each necessarily including marine, fluvi-marine, freshwater, terrestrial and volcanic deposits (*formations*). But although the causes of each of these kinds of deposit must have been in operation during every past epoch, it may be doubted whether we shall ever discover the equivalents—freshwater, terrestrial, volcanic, &c.—of every one of the known marine formations.

Mr. HOPKINS remarked that the formation of a scientific language must always be a difficult subject; even in mathematics, language was constantly extending itself, and in the less exact sciences names had often to be given to ideas which were not yet clear and phenomena not wholly understood.

The Rev. J. GUNN exhibited the Femur of a gigantic Fossil Elephant, dug up on the beach at Bacton.—It is the shaft only, without the epiphyses, of a full-grown but not aged individual, and measures four feet in length; by placing with it articulating extremities of corresponding size, from the same formation, the complete femur is shown to have been four feet in length. The head of another femur, from Mr. Gunn's collection, was obviously too large to have belonged even to this magnificent specimen. Another entire femur of an aged elephant, dredged up off Yarmouth, was only 3 feet 4 inches long, but still indicated an animal equal in size with the largest living Indian elephants. With respect to the species of elephant to which these remains belonged, Mr. Gunn exhibited molar teeth obtained from the same localities, showing that the gigantic species was most probably the *Elephas meridionalis* of Netti, whose remains are found in the pliocene formations of the south of Europe, and whose existence as a characteristic fossil of the British crag and its equivalent freshwater deposit at Grays, had been fully determined by Dr. Falconer, and confirmed by the observations of Mr. Waterhouse. The smaller species appeared to be identical with the mammoth, or Arctic elephant of Siberia, whose tusks are remarkable for their double curvature, and the grinding teeth for the great number of enamel plates. The bones of this animal are always much less mineralized than those of the older species; they have been found over all Northern Europe, they are dredged in many parts of the British Channel, and occur in some of the caves. They are closely connected with the strata containing spruce fir-cones at Bacton, and with those newest beds containing Arctic sea-shells and other indications of a colder climate.

Mr. C. B. ROSE exhibited the Antler of a Reindeer, found by Capt. Alexander below the cliff near Southwold, and probably derived from the glacial deposits of which the upper part of those cliffs is formed. As it was the first occurrence of the animal in Suffolk, he presented the specimen to the Ipswich Museum. He also showed a very small, recent-looking antler of a fallow-deer obtained from a fen at Roydon, near Diss. It was found at the depth of eight or ten feet, associated with remains of the red-deer, roebuck, and ox. Mr. Rose quoted the opinion of Dr. Fleming, that the fallow-deer was a native of Britain; in which he was supported by Mr. Strickland,—who remarked, also, that the reindeer had been found with the Irish elk in the marl under a peat bog on the coast of Holderness.

Mr. RAMSAY stated that Mr. Oldham had found the reindeer under the same circumstances in Ireland.—Mr. J. BROWN, of Stanway, stated that he had a bone of the reindeer from Essex; and that the beaver of the old lacustrine formations of the eastern counties (referred to by some previous speakers as identical with the living beaver of Europe) was a distinct species.

Mr. Mallet presented his 'Second Report on the Facts of Earthquakes,' and stated the result of his experiments for the 'Determination of the Limits of Earthquake Wave Transit,' for which the proposed plan was explained last year.—The rate of transit

The fallow-deer is usually considered to have been introduced from the East; it is represented on one of the Norwich marbles. No unequivocal remains have been found fossil in Britain.

was expected to be the least rapid in sand, and most in some elastic, homogeneous, crystalline rock. Accordingly, a mile was measured on the sands near Dublin, and a cask of powder buried at one extremity,—the interval between the firing of the powder and the indication of the shock at the other station, as registered by Wheatstone's chronograph, gave a rate of 965 feet per second, as the average of ten good experiments. A shorter base was measured on the granite, and shocks produced by borings $3\frac{1}{2}$ inches diameter and 18 feet deep, in which as much as 20 lb. of powder were exploded. The experiment was repeated twenty or thirty times,—and where the granite was most shattered the shock arrived at the rate of only 1,299 feet per second; under the most favourable circumstances, where the rock was most homogeneous, the impulse travelled at 1,661 feet per second. In many of the most celebrated earthquakes clocks have been stopped, and thus indications afforded of the rate at which the shocks travelled. In the Lisbon earthquake of 1761, the shock travelled to Corunna at the rate of 1,994 feet, to Cork at the rate of 3,280 feet, and to Santa Cruz in Barbary at 3,261 feet per second. The great Cutch earthquake, in 1819, stopped the clocks in Calcutta, and showed a rate of 1,173 feet per second. The Nepal earthquake of 1834 stopped numerous chronometers, and the rate of transit from the assumed centre to various places showed a rate varying from 1,000 to 3,000 feet per second. These rates were all lower than would be expected, considering rocks as homogeneous substances; and perhaps, after all, the earthquake shocks might follow a law altogether different from that of sound waves.

Mr. Mallet then called attention to the Catalogue of Earthquakes, amounting to nearly 6,000, and exhibited diagrams in which the amount of earthquake disturbance in all known times was represented by curved lines; these showed a slight indication of paroxysmal periods, with intervals of half-a-century or more. Another diagram representing the months in which the shocks occurred, showed a maximum in December and January. Mr. Mallet then exhibited a map of the distribution of earthquakes, formed by colouring the area of each successive earthquake recorded in the Catalogue, and one wash of colour being carried over another, produced tints of intensity proportioned to the frequency of these visitations. On this map the regions of Guinea, Abyssinia, and Madagascar were uncoloured, no recorded earthquakes having occurred in them; Greenland was uncoloured, because the slight shocks felt there might have been occasioned simply by movements of masses of ice upon the coast. Special attention was called to one spot in the Atlantic near the Line, and midway between Guinea and Brazil; vessels passing this tract almost always experienced shocks,—the soundings were extremely variable, some being obtained at 400 fathoms, whilst at very small distances the depth was exceedingly great, as if the bottom was formed by a group of volcanic mountains. The connexion between earthquake lines and volcanic lines was very apparent on this map; but some earthquake regions, like Central Siberia and a tract extending from India to Bohemia, display very little volcanic energy. On a diagram section of the globe, the most distant points at which great earthquakes had been felt were connected by straight lines; these showed what very large portions of the mass of the earth might have been affected supposing the original impulses to have been communicated at very great depths. Lastly, Mr. Mallet called attention to the great want of bibliographical catalogues in all public libraries, which rendered the search after earthquake literature a work of enormous labour.

Mr. HOPKINS remarked that whilst he placed no faith in such indications as those of earthquakes being more frequent in the winter, they were yet very curious; and it was not yet known how much might be due to the influence of apparently trivial causes. With regard to the condition of the interior of the globe, and looking at the earthquake map, he was still disposed to lean towards the hypothesis of the existence of internal lakes of fluid, more or less disconnected, in preference to a fluid central nucleus; earthquake shocks would be propagated to great distances beyond the boundaries of the agitated fluid.

Lieut.-Col. PORTLOCK exhibited Fossils collected by Mr. R. Rubidge at Sunday River, on the Cape from-

tier. They consisted of marine shells of the genera Ammonites, Gryphæa, Photadomya and Trigonia; and plants of the genera Zamia, Neuropteris, Pecopteris and Sphenopteris. The shells were apparently of Jurassic age; the plants, which had been examined by Dr. Harvey, were regarded as chiefly resembling those of the coal of Australia.

Mr. BUNBURY stated that the Zamia was eminently characteristic of the series included between the Keuper and the Wealden; the others were fossil ferns in such a condition, that nothing short of specific identity would be of any value in determining their age. The age of the Australian coal plants was still problematic; but they had been regarded by Mr. Morris as more nearly resembling the oolitic plants of Yorkshire than those of the true coal.

'On Indications of Upheavals and Depressions of the Land in India,' by Dr. W. BUIST.—These exist all round the shores of India, from Calcutta to Bombay. They are met with in clearing out docks and tanks, in which beds of loamy soil are found, full of the roots and stools of trees, at a level below the mean level of the sea, and covered by sea-sand and shingle. At Bombay these ancient forests are covered by a concrete of shells and gravel, and in some instances beds of fresh-looking coral have been found. The lignite contains sulphate of iron, which effloresces so abundantly as to have been collected and sold to dyers. The roots are often much worm-eaten, the borings being lined with carbonate of lime. Capt. Fulljames noticed similar phenomena at Gogo, in the Gulf of Cambay, and Capt. Viary at Kurachee. The sea-margin of Western India is almost everywhere an expanse of level ground, only from three to ten feet above high water, consisting of loose or cemented gravel with sea shells. Similar tracts have been traced along the shores of the Persian Gulf, the Red Sea, and the east coast of Africa. Near Poona, in the Deccan, is an alluvial tract cut through by rivers, which shows thick beds of recent freshwater shells cemented by carbonate of lime, at a depth of fifteen feet below the surface. It is supposed to be the site of a great lake; and the opinion of Dr. Gibson is quoted to the effect that all the alluvium of the Deccan has had a similar origin.

The Rev. T. RANKIN stated in a paper, that the parish church of North Dalton, near Beverley, stands on a small mound with a pond below. The mound is a mass of chalky gravel, usually supposed to be artificial,—but the writer regards it as a mass of drift left by currents.

MONDAY.

SECTION D.—NATURAL HISTORY, INCLUDING PHYSIOLOGY.

'On the Anatomy of the genus Sagitta,' by Mr. T. H. HUXLEY.—The author stated that he had frequently met with this creature during his voyage in H.M.S. Rattlesnake, and had examined it carefully by the aid of the microscope. Some points in its structure, especially a large anterior nervous ganglion, had induced naturalists to regard this creature as a form approaching the Mollusca, but the author regarded it as more closely connected with the Annelida.

Prof. E. FORBES said that he had often taken this creature in the British seas. It was very widely diffused through the ocean. Its perfect transparency and arrow-like form made it difficult to be detected in the water. He had always regarded it as more closely related to the Mollusca than to any other family. He thought it might hold a similar relation to the Gasteropoda on the one side that the Chitons did on the other.—Mr. C. PEACH stated that he had found it from one end of the kingdom to the other. He could confirm Mr. Huxley's observations, as he had often taken it and made drawings of its anatomy. In his specimens a small semicircular appendage was observed on each side of the fin. He had seen a sagitta swallowed by a medusa. The sagitta was more abundant in Cornwall than in Aberdeen.—Prof. McCoy pointed out the resemblance of the ganglion in Sagitta to that which occurred in the Branchiourous Crustacea. Milne-Edwards regarded the Chiton as an annulose animal.—Mr. HUXLEY thought the proper position of Sagitta might ultimately be found to be between the Crustacea and Annulosa.

The Secretary read a paper from Messrs. ALDER and HANCOCK on the Branchial Currents in Pholae

and Mya.—In this paper the authors brought forward a series of experiments to show that in the families of Pholadidae and Myidae there existed a communication between the branchial, or upper, and the lower syphons which these animals are known to possess. These observations and experiments were made to controvert the opinion expressed by Messrs. Garner and Clark, that no such communication existed as the authors had observed. The paper was illustrated by drawings of the syphons in *Pholas crispata*.

'Remarks on the Vitality of Seeds,' by Prof. HENSLER.—The author stated that during the last year he had planted several seeds sent to the Committee appointed to report on this subject, and out of those he had planted two had grown. They both belonged to the order Leguminosae, and one was produced from seed seventeen, and the other from seed twenty years old. On the whole, it appeared that the seeds of Leguminosae retained their vitality longest. Tournesfort had recorded an instance of beans growing after having been kept a hundred years, and Willdenow had observed a sensitive plant to grow from seed that had been kept sixty years. The instances of plants growing from seeds found in mummies were all erroneous. So also was the case, related by Dr. Lindley, of a raspberry bush growing from seed found in the inside of a man buried in an ancient barrow.

Mr. BABINGTON related a case in which M. Fries, of Upsala, succeeded in growing a species of Hieracium from seeds which had been in his herbarium upwards of fifty years. Desmoulins recorded an instance of the opening of some ancient tombs in which seed was found, and on being planted they produced species of Scabiosa and Heliotropium. Recently some seeds from Egypt were sown in Cambridge which were thought to have germinated, but on examining them they were covered with a pitchy substance, which had evidently been applied subsequent to their germination, and thus they had preserved the appearance of growth through a long period of time.

—Dr. CLEGHORN stated that after the burning or clearing of a forest in India, invariably there sprang up a new set of plants which were not known in the spot before.

'Report on the Physical and Economical Effects of the Destruction of Tropical Forests in British India,' by Dr. H. CLEGHORN.—Viewing the question in its physical relations, the author drew attention to the climatic influences of the denudation of the surface of the country; he adverted to the known phenomena of decrease of springs, and the consequent diminution of river supplies, as results of the entire removal of the woods which are collected on the highlands, where such supplies usually originate, and while distinctly admitting that wherever the wants of an advancing population require the clearance of forest lands, whether for food or the protection of health, such clearance is to be encouraged, he at the same time insisted strongly on the propriety of exercising a careful vigilance, under well-defined regulations, in all cases in which the above-mentioned causes are not in operation. In considering the economic relations of the question, Dr. Cleghorn availed himself largely of the labours of various distinguished and intelligent observers to illustrate the effects of the existing imperfect system of protection and superintendence. He recorded evidence as to the state of the forests in Malabar, Canara, Mysore, Travancore, the Tenasserim provinces, the Indian Archipelago, and the wooded tracts which skirt the base of the Himalayas. From this evidence, it appears that neither the Government nor the community derive from the forests all those advantages which they are calculated to afford. There are numerous products of which the value is known and appreciated,—but which are collected in ways so rude and wasteful, that it is doubtful whether more of them are not lost in the process than are brought into commerce. There are others, perhaps more numerous, which are known only to the scientific observer; to these, it has been the endeavour of the Committee to direct attention. It is no unauthorized inference, that in the depths of those great forest masses there may still be many substances which only await recognition by instructed eyes to take their places among the valuable agents of manufacturing industry, social comfort, or medical practice. To correct the first, to extend the second, and to

discover the third, are the leading points to which the Committee would direct attention; and they have endeavoured to furnish to the best of their ability information calculated to advance each of those interesting ends. The general conclusions which appear to the Committee to be warranted by the various statements of fact and opinion, may be summed up as follows:—1, That over large portions of the Indian empire there is at present an almost uncontrolled destruction of the indigenous forests in progress, by the careless habits of the native population. 2, That in Malabar, Tenasserim and Scinde, where supervision is exercised, considerable improvement has already taken place in the forests. 3, That these improvements may be extended by a rigid enforcement of the present regulations, and the enactment of additional provisions of the following character,—viz, careful maintenance of the forests by the plantation of seedlings in the place of mature trees removed,—prohibition of cutting until trees are well grown, with rare and special exceptions for peculiar purposes,—in cases of trees yielding gums, resins or other valuable products, that greater care be taken in tapping or notching the trees, most serious damage at present resulting from neglect in this operation. 4, That special care and attention should be given to the preservation and maintenance of the forests occupying tracts unsuited for culture, whether by reason of altitude or by peculiarities of physical structure. 5, That in a country to which the maintenance of its water supplies is of such extreme importance, the indiscriminate clearance of forests around the localities whence the supplies are derived is greatly to be deprecated. 6, That, as much local ignorance prevails as to the number and nature of valuable forest products, measures should be taken to supply, through the officers in charge, information calculated to diminish such ignorance. 7, That, as much information which may be of practical utility is contained in the manuscript Reports and Proceedings of the late "Plantation Committee," it is desirable that the same should, if practicable, be abstracted and given to the public.

Capt. STRACHEY said he could not agree with those who thought that forests had much influence on climate. It was a notion that they encouraged rain,—but it was more probable that rain was the cause of forests. He alluded to districts in India in which the forest vegetation was just in proportion to the fall of rain; being small and diminutive where there was little rain, and abundant and gigantic where there was much rain. In temperate climates forests might produce an effect,—but certainly not in the tropics. With regard to the economical question, there could be no doubt that it was foolish to destroy what was valuable, but we had not the power to arrest the present destruction of forests in India.—Mr. BUNBURY enumerated several instances where forests did not exist and yet there was much rain, and others where forests existed and there was little rain. Humboldt was our great authority on this subject, and he had recorded his opinions of the influence of forests on climate. In many districts where forests were cleared and single individuals left, these latter soon died from the want of the influence of their neighbours.—Dr. LANKESTER pointed out that according to the laws of vegetation plants must be supplied with water in a liquid or vaporic form for their growth, and that all the facts which had been mentioned, and which at first sight appeared opposed to each other, might be explained. That forests did not always grow in rainy districts arose probably from the waters accumulating and forming morasses in which forest trees would not grow. In districts where there was not much rain there might be much moisture in the atmosphere,—rain in general supplied only a very small quantity of the water required by plants. Vegetable physiology afforded no explanation of the effects on climate, attributed by some observers to forests.

Dr. CLEGHORN, in answer to a question from Dr. Lankester, gave a short account of the destruction that is now going on in the forests of *Isonandra gutta*, the plant which yields the gutta pertasha. The extent of these forests is at present unknown; but the present process of collecting the gum renders it highly probable that the supply of this article may be very considerably diminished.

Prof. ALLMAN exhibited a monstrosity of the common Wallflower (*Cheiranthus Cheiri*), in which the stamens were converted into carpels, and from some points in the structure of these metamorphosed stamens he gathered the inference that the stigmas of the Cruciferae were composed of the union of the two half stigmas of a normally two-horned stigma.

TUESDAY.

'On some facts tending to show the probability of the Conversion of Asci into Spores in certain Fungi,' by the Rev. M. J. BERKELEY and Mr. C. E. BROOME.—The species of plants which afforded the materials for the remarks of the authors were the following:—1, *Tympanis saligna* (Tode).—2, *Sphaeria ingimans* (Tode).—3, *Hendersonia mutabilis* (Berkeley and Broome.) In the first instance a specimen of the *T. saligna* produced both sporiferous asci and naked spores from the same hymenium. In the second case the spheria was found growing together in the same matrix with the *Stilbospora macrospora*, the two plants having a common orifice for the emission of their sporidia and spores. In the third case a specimen of *H. mutabilis* exhibited two cells containing different bodies, each having the character of spores.

Dr. J. HOOKER stated, that from his examination of the Laminariae of the Antarctic Expedition, he had no doubt that an ascus might be converted into spores. The examination of this subject was fraught with interest to the botanist, and he hoped further observations would be made.

'On the Botanical Geography of the Himalaya Mountains and Tibet,' by Capt. R. STRACHEY and Major MADDEN.—Capt. STRACHEY, by the aid of maps and diagrams, the principal features of the vegetable kingdom in the districts of India in which he had travelled in company with Major Madden.

Dr. T. THOMSON, also by the aid of a series of diagrams, representing the distribution of plants in Western Tibet, described the botanical geography of this district.

Dr. J. HOOKER observed that Capt. Strachey and Dr. Thomson had done for the Himalaya what Humboldt had done for the Andes. The district of the Himalaya in which he had travelled was not unlike that just described,—it was however higher, reaching to 28,000 feet, whilst that first described was only 25,000 feet. In the Sikkim Himalaya the ascents were constantly modified by descents, and there was more rain, and the line of perpetual snow was lower than in Kumon. Pines were alike abundant in both regions. The larch was abundant in Sikkim, but absent in Kumon. Rhododendrons numbered thirty-six species in Sikkim, but only six or eight in Kumon.—Mr. WINTERBOTTOM, who had travelled over the same districts with Capt. Strachey and Dr. Thomson, compared the Flora of the Alps with that of the Himalaya, and pointed out the comparative richness of the latter. Where firs alone grew on the Alps, a most varied and beautiful vegetation was observed in the Himalaya. There was, however, a great difference in different districts. Where the rains fell and the atmosphere was moist, there the vegetation was most prolific, but where there was a want of moisture the land was sterile and truly disagreeable to behold. Many of the plants were representative of European species.

The SECRETARY brought up the Report of the Committee 'On the Vitality of Seeds,' which, in addition to the observations of Prof. Henslow before recorded, on account of the earliness of the season, presented no new features of interest.

Dr. LANKESTER presented a new series of drawings of species of Zoophytes,—some of which were described at the last meeting of the Association by Mr. Busk. The object of this exhibition was, to show the nature of the work in which Mr. Busk is engaged, and to solicit from all those possessed of specimens the loan of those which Mr. Busk had not yet figured. The species required are, those of the marine Polyzoa and the Sertulariadae,—more especially West Indian and North American forms. Mr. Busk would be glad to obtain examples of *Beania mirabilis*, *Crisidia setacea*, *Lilicornaria sinuosa*, and the so-called *Cellularia Hookeri*. The plates exhibited were intended to form the illustration of a new monograph on the Zoophytes of the Indian Archipelago.

of a catalogue of the Zoophytes in the British Museum.

'On some Recent Calcareous Zoophytes found at Ipswich, Harwich, &c.,' by Mr. C. W. PEACH.—He commenced by stating that when he left home it was not his intention to offer any communication to the Section. On finding no calcareous zoophytes in the Museum at Ipswich, and having found fifteen or sixteen species at that place, some from the Orwell, others at Harwich, he mentioned them to induce some one to collect and fill up this gap. Some of the specimens found are the most beautiful of the British Leprealias; one of which agrees with one new to the British list, found by him also in Cornwall and Scotland. He also produced one new to the British list from Cornwall, and which, on examining some Leprealias from the Mediterranean on a Pinna, he found to be identically the same. He also called attention to the scooping of pits in shells and stones by Leprealia, and exhibited several specimens of shells and a stone which had been scooped by one of the most delicate calcareous ones, *Hippothoa divaricata*, which it had equally scooped with those of larger size. Some of the shells had not only the pits, but the Leprealia as well.

Prof. HENSLOW regarded Mr. Peach as an excellent example for the people of Ipswich. Whilst a coast-guard man, he had found time to cultivate a taste for natural history, and this had led to his present position. Mr. Peach had seldom failed to contribute most important objects of interest to this Section at its meetings during the session of the Association.

'On the Antennæ of the Annulosa and their Homologies in the Mammalia,' by Dr. W. MACDONALD.

'On a Monstrosity of *Lathyrus odoratus* discovered in the Garden of John King, Esq.,' by Dr. LANKESTER.—In this specimen, the papilionaceous petals were reduced to mere scales, the calyx was regular, and the stamens assumed the condition in which they are found in regular flowers with ten stamens arranged in two rows. The fruits presented a foliar character.

'Report on the Reproduction of the higher Cryptogamia,' by Mr. A. HENFREY.—This was an instalment of a Report, called for by the Association last year, on the recent progress of Vegetable Physiology, from Dr. Lindley, Dr. Lankester, and Mr. Henfrey. The greater part of this report was taken up by a summary of the facts at present on record respecting the occurrence of the organs termed antheridia and pistillidia in all the higher families of cryptogamic plants—viz. the Mosses, Liverworts, Ferns, Horse-tails, Club-mosses and Pepperworts. After discussing the various debated points, the Report concluded:—"Perhaps the time has hardly come for us to arrive at any conclusion on these points. The phenomena in the Ferns and Equisetaceæ, as well as in the Rhizocarpeæ, Lycopodiaceæ, and Isotaceæ less strikingly, seem to present a series of conditions analogous to those which have been described under the name of 'alternations of generations' in the animal kingdom; and seeing the resemblance which the pistillidia of the Mosses bear to the 'ovules' of the other families, we can hardly help extending the same views to them,—in which case we should have the remarkable phenomenon of a compound organism, in which a new individual, forming a second generation developed after a process of fertilization, remains attached organically to its parent, from which it differs totally in all anatomical and physiological characters. It is almost needless to advert to the essential difference between such a case and that of the occurrence of flower buds and leaf buds upon the same stem in the Phanerogamia, as parts of a single plant, yet possessing a certain amount of independent vitality. These are produced from each other by simple extension, by a process of germination; while the moss capsule, if the sexual theory be correct, is the result of a true reproductive process. Moreover, we have the analogy to the increase by germination in the innovations by which the leafy stems of the mosses are multiplied. In conclusion, it is remarked, that these anomalous conditions lose their remarkable character to a great extent if we refuse to accept the evidence of sexuality which is brought forward in the report. If the structures are all products of mere extension or germination, the analogies which have been supposed to exist

between them and the organs of flowering plants all fall to the ground. But, believing that the hypothesis of sexuality is based on solid grounds, the Reporter is by no means inclined to allow the difficulty of the explanation of these relations to be urged as a valid argument against their existence. He trusts that the present Report may be the means of attracting new investigators to a subject which presents so many points of interest and importance."

Prof. HENSLOW referred to the great interest of the questions which Mr. Henfrey had undertaken to report on,—and felt sure that every physiological botanist would study earnestly the very valuable Report which had been read.

'Account of a New Apparatus for the Supply of Warm Air to the Lungs, with an examination of the principle of the Respirator,' by Dr. T. G. HAKE.—This apparatus consisted of a gum elastic bag worn under the clothes over the chest. This bag communicated below with the external atmosphere, and above conveyed the air to the person breathing. By a series of valves the fresh air alone was allowed to pass into the lungs, and the used air was expelled into the atmosphere. Dr. Hake thought this apparatus preferable to the ordinary respirator, not only on account of its greater economy, but on account of a fresh supply of pure air being constantly assured.—The instrument was examined by several medical men, who seemed to think favourably of its claims to trial.

'On a Sample of Blood containing Fat,' by Dr. J. H. GLADSTONE.—The author detailed an examination of a sample of serum, which was quite white and opaque, from floating globules of a substance that was found to consist of a crystalline matter, apparently cholesterol, mixed with a much larger amount of non-crystallizable fat, readily saponified when boiled with alkali. The sample was given to Mr. Wrench, who exhausted 2 ounces 40 minims of the liquid by means of ether, and obtained from it 3.96 grains of fat. The amount of fatty matter in the blood itself must, of course, have been larger, since that portion which had become entangled in the coagulated clot was not estimated. The blood was taken from a patient suffering from symptoms of apoplexy. He recovered. The author could not find any account of fatty blood having been observed in this disease.

'Some further consideration of Mr. Grove's Theory of the Correlation of Physical Forces, and of the Arguments for extending the Correlation to Mind and Vitality,' by Dr. FOWLER.—After alluding to the recent researches of Dr. Carpenter, Mr. Newport and Prof. Matteucci, the author proceeded to point out that the same correlation which connected the physical forces together would apply to vitality, and even to mind.

'On Cretinism in England,' by Mr. R. TWING.—At the last Meeting of the British Association, at Edinburgh, it was suggested, in a paper read by Dr. Coldstream, "that it was advisable to obtain statistical information as to the number of idiots in Great Britain." The knowledge to be thus obtained is still most desirable and requisite to the due carrying forward of the work of forming institutions for their relief. Since the last meeting, we have renewed proofs that the Swiss cretin is in many cases capable not only of relief but of cure. The late visit of Dr. Guggenbühl, the founder of the Institution on the Abendberg, has caused fresh observation on this subject to be made known and confirmed. He was unable to remain in England to attend this Meeting, but he is very anxious that all possible research should be continued concerning the numbers of those afflicted with the malady in this country, and the degree of idiocy to which they are reduced. He made several journeys through different counties of England, the result of which has been partly made known in a 'Letter addressed to Lord Ashley on some Points of Public Concern and Christian Legislation.' Although the disease exists under different forms in different countries, yet in all its states it must always be considered as one of the greatest calamities which can afflict a family or an individual; and each country is deeply concerned in ascertaining how far it may be relieved or cured, as well as in what manner it may be averted or prevented by timely care. That it is a question peculiarly affecting the present attention to sanitary measures, both in towns and in

villages, is undoubtedly evident. It may be denied by some that any true cretins exist in England, although Dr. Guggenbühl relates that "of 500 idiots lately discovered in Lancashire a considerable number are marked with the character of cretinism." In the village of Settle I detected some cases nearly identical with many of the cretins of the Alps. In the village of Chiselborough, in Somersetshire, most of its 350 inhabitants are afflicted with goitre, are very subject to deafness, imperfect utterance and low degree of intelligence, which in as many as twenty-four individuals descends to absolute cretinism." Idiocy is generally allowed to be incurable, whilst cretinism has been often cured,—yet, in all cases, idiots are capable of some kind of amelioration. This has been proved by Dr. Howe, of Boston, United States,—and by the institutions founded within the last few years in this country. At Park House, Highgate, and at the branch institution at Essex Hall, Colchester, great relief has been afforded and beneficial changes have been effected in the state of the poor idiot children, in regard to health, behaviour, happiness, comfort, and even intelligence, for in many cases they have been enabled to occupy themselves in various useful ways. The work of restoring the cretins has been carried on in Switzerland by one devoted individual during the last ten years. Similar establishments are now rising up in several countries of the Continent. Three houses have been opened in this country for the poor idiot,—but the number of applicants far exceeds the vacancies. To ascertain the numbers and to provide institutions is now a work to be carried on;—every effort hitherto made having proved successful so far as the nature of the case admitted of relief or cure.

MONDAY.

SECTION E.—GEOGRAPHY AND ETHNOLOGY.

'On the Geography of Kumón and Garhwál in the Himálaya Mountains,' by Capt. R. STRACHEY.—Capt. Strachey began by giving a sketch of the general configuration of the surface of Central Asia; in which he pointed out that the elevated region known as Tibet formed the summit of a great protuberance above the general level of the earth's surface of which the two mountain chains known by the name of the Himálaya and Kouenlun were nothing more than the south and north faces, these ranges having no definite special existence apart from the general mass. He then proceeded to give a more detailed account of the main physical features of the British provinces of Kumón and Garhwál, in the Himálaya, and of the part of Tibet contiguous to our frontier to which his own observations had been restricted. The plains of Northern India extend along the entire southern edge of the Himálaya, over about 500,000 square miles, nowhere exceeding in elevation 1,200 feet above the sea. From these rise the mountains suddenly and in a well-defined line. The exterior range, called the Siwaliks by Dr. Falconer and Col. Cautley, is of no great elevation, hardly exceeding 3,000 feet. The characteristic tracts of swamp and dry forest that occur along its southern face, known as Tarai and Bhábar, and the longitudinal valleys called Dún along its northern slope were described. Immediately above these rise the first ranges of the great mountain region that extends to the north, over a breadth of upwards of 200 miles. The loftiest peaks, some of which exceed 28,000 feet in height, are usually found along a line of 80 or 90 miles from the southern edge of the chain, which in Kumón neither is coincident with the water-shed nor forms a continuous ridge, but is broken up into groups, separated by deep gorges, and connected by transverse spurs with the water-shed range that runs 20 or 30 miles further to the north. On crossing this water-shed, which forms the boundary between Tibet and our provinces, the traveller finds himself, not without astonishment, on a plain of 150 miles in length and 30 or 40 in breadth, the elevation of which varies from 16,000 feet along its southern edge to 14,500 feet in its more central parts, where it is cut through by the river Sutlej. It is everywhere intersected by stupendous ravines, that of the Sutlej being nearly 3,000 feet deep, which are furrowed out of the alluvial matter of which the plain is composed. The mountains that bound this plain to the north hardly enter the region of perpetual

snow:—the famous peak of Kailās, which is nearly 22,000 feet in altitude, being the highest point. Capt. Strachey then gave a brief account of his first journey into this country,—in which, in company with Mr. J. E. Winterbottom, he reached the lakes of Rākastāl and Mānasarowar, which are found towards the eastern extremity of the plain at an elevation of 15,200 feet.

A general view of the geology of these regions followed; from which it appeared that from the Siwalik range, which was before known to be of tertiary age, the mountains are formed of metamorphic rocks, until we pass the line of greatest elevation. We then again find fossiliferous rocks, which form a regular sequence from the lower Silurian to the tertiary formations. Fossils from all of these beds have been collected and brought to this country by Capt. Strachey. It is of the tertiary beds that is composed the great plain already described, and in them have been found fossilized remains of elephant and rhinoceros at an elevation of between 14,000 and 15,000 feet above the sea. From a general consideration of these circumstances, it was inferred that the present wonderful development of the Himalāya and of the elevated regions of Tibet dates no further back than the tertiary period:—being, in fact, one of the most recent changes that the surface of the earth has undergone. Proceeding from the solid crust of the earth to its aerial covering, an account was given of the chief meteorological phenomena:—among which it will be sufficient to specify two of the most remarkable,—namely, the glaciers and perpetual snow. Glaciers were shown to abound in all parts of the mountains covered with perpetual snow descending as low as 11,500 feet. The snow-line, the height of which has given rise to much discussion, was stated to descend to about 15,500 on the southern face of the Himalāya; while it was pointed out that as we advance to the north of the great peaks, and stand on the mountains bordering the Tibetan plain, the snow line has receded to 19,000 or 20,000 feet. This phenomenon was shown to depend chiefly on the fact that the quantity of snow that falls to the north of the great Himalāyan peaks is far less than that which falls on their southern slopes. Capt. Strachey then passed to the description of the vegetation of these mountains. Its character was shown to be truly tropical up to elevations of about 4,000 feet, though even from 3,000 feet some of the forms of temperate climes begin to appear. The remarkable admixture of these temperate forms with those of the torrid zone that is met with in the valleys of the larger rivers that penetrate at a very low level far into the interior of the mountains was also noticed. Above 4,000 feet, oaks, rhododendrons and andromeda form a very great proportion of the forest up to 7,000 feet; although in many places the *Pinus longifolia* clothes the slopes of the hills to the exclusion of everything else, nearly within the same limit, or from 3,000 to 6,000 feet. As we ascend, species of the deciduous trees of colder climates are introduced,—and they, with the addition of other pines, prevail in the upper parts of the forest, from 8,000 to 11,500 feet, where arboreal vegetation is usually found to terminate rather suddenly. Above this, a more open tract succeeds, in which the vegetation is for the most part herbaceous, few shrubs ascending so high as 14,000 feet. As we recede in our progress to the north, behind the higher summits of the range, the country rapidly becomes more arid; and when we reach the plain of Tibet we find it to be almost a desert, on which few plants rise even to the height of a single foot. The vegetation, which, though scanty, is still highly interesting from its similarity to that of the Arctic Regions, may be considered finally to cease at about 17,000 or 18,000 feet. After referring to the agriculture of this tract, in which the profitable cultivation of the cereal grains was shown to be carried up to about 14,000 feet, Capt. Strachey concluded by an account of some of the zoological characteristics of the Tibetan plateau. He mentioned more particularly the kyang or wild ass, the yak, the wild and domestic sheep and goats, the ounce, and other animals, specimens of which he brought with him from that country, and which have lately been set up in the East India Company's Museum.

On the Inhabitants of Kumāon and Garhwāl, by

Mr. J. STRACHEY.—After alluding to the difficulty of arriving at satisfactory conclusions regarding the ethnological relations of the tribes inhabiting the Himalāya, in consequence of that range of mountains lying on the boundary line between two or more races, Mr. Strachey proceeded to give some account of the people called Khasiya,—which comprise the greater part of the inhabitants of Kumāon and Garhwāl. A tribe of the same name is spread extensively over the greater part of the Nepālese territories; and it has been assumed from this circumstance and other facts observed in the eastern parts of the Himalāya, that the Khasiyas generally are a people of mixed Tibetan and Indian race. Although this may perhaps be true of the Khasiyas of Eastern Nepāl, Mr. Strachey considered that it was by no means proved to be the case as to those of Kumāon; and he doubted whether the signs of any non-Indian stock were more definite in the people of Kumāon than in those of the plains of Northern Hindūstan. In form and feature, in language, religion, and customs, the Khasiyas of Kumāon appear to be Hindū, and all their sentiments and prejudices are so strongly imbued with the peculiar spirit of that faith, that, although their social habits and religion are often repugnant to Hindū orthodoxy, it is difficult for any one who knows them to consider them anything but Hindū. The custom of polyandry does not prevail in Kumāon and Garhwāl. Mr. Strachey pointed out why he considered that the existence of this custom did not necessarily prove descent from a Tibetan stock, and how it might grow up in a purely Hindū community as a consequence of the general social state. Historical evidence helps to confirm the opinion that the Khasiyas of Kumāon are of Hindū origin. It is proved by ancient inscriptions found in Garhwāl that, say fifteen hundred years ago, the Hindū religion was in full force in these provinces, and that in the country itself the people were then known by the name Khasa. In Manu, the Mahābhārata, and in several of the Purānas, we read of a race of Kshatriyas called Khasa, dwellers in mountains, who have become degraded by the neglect of religious rites,—and it is curious that the Khasiyas of Kumāon at the present day give an almost exactly similar account of themselves. After speaking of some of the social and economical peculiarities of the Khasiyas, Mr. Strachey proceeded to give an account of the Bhōtiyas, the most important of the tribes of Tibetan origin found in Kumāon and Garhwāl, inhabiting the country near the Tibetan frontier, among the highest parts of the Himalāyan chain. Their villages are situated at elevations varying from 7,000 to 12,000 feet above the sea. But the Bhōtiyas derive their chief means of subsistence, not from agriculture, but from the carrying trade between Tibet and the Cis-himalāyan States, of which they possess a monopoly. An account was given of this trade and of their general habits, religion, languages, &c. Of their Tibetan origin there can be no doubt. The adjoining province of Tibet was also referred to. The name of this country is *Hūnda*, the land of *Huns*,—not *Hiundes*, the snow country, nor *Oondes*, the wool-country, as it has been variously termed. From ancient inscriptions found in Garhwāl, of which Mr. Strachey intended to give an account hereafter, it is proved that the country in question was called *Hūna*, probably more than 1,000 years ago; and there can be no doubt that the race of *Hūnas* often mentioned in the Purānas must be referred to the same country. This fact seems to help to corroborate the views of the Chevalier Bunsen and of other ethnologists regarding the origin of the Huns in the countries on the northern borders of the Himalāya.

The reading of this paper elicited some interesting remarks from the President, Sir R. I. MURCHISON, Mr. WINTERBOTTOM, and Mr. R. CUST—the latter two both travellers in the Himalayas.—Dr. DONALDSON said, that in his opinion, the value of Capt. Strachey's paper consisted in the fact that it was a contribution to pure scientific geography. As there were many persons in the room to whom scientific geography was a new study, he might be excused for explaining one of the points in the paper which appeared to him to have peculiar value. Capt. Strachey had shown that the mountain range of the Himalayas, the loftiest in the world, was, geologically speaking, of very recent origin.

Most people spoke of mountains as types of antiquity—they were called "eternal hills,"—but it was known to the physical geographer that they were the youngest features of the earth's surface. In some parts of the world they were still in the process of formation.—Dr. R. G. LATHAM remarked, that there were three points on which he differed from Mr. Strachey in respect to their value as ethnological criteria. *Polyandria*, or the so-called multiplicity of husbands, for the parts in question, was *primā facie* evidence of Tibetan blood,—and even when not existing in an unmistakable form, it was generally to be found in some modified form. That the language was not absolutely Hindū, might be seen by Mr. Hodgson's vocabulary. The name seemed not to be native,—a fact which always subtracted from its value as a character.

'On the Negro Races of the Indian Archipelago and Pacific Islands,' by Mr. J. CRAWFORD.

Mr. Cull read a 'Communication relative to the great Earthquake experienced in Chile, April 2, 1851, from R. BUDGE, Esq. to W. BOLLARD, Esq., in a letter dated April 17, with Observations by the latter.'—"It came westward and, of course, from the east; which I consider sufficiently proved from the circumstance of the water in basins, water-jugs, &c. having been spilt over the east side,—from the clocks whose pendulums vibrated east and west having stopped, while those beating north and south did not,—from walls standing east and west being cracked every way, particularly lengthways,—and from vessels at sea, forty to sixty miles off the land, having felt it at a corresponding hour to the difference of longitude. That it is electric I have also grounds for believing; for it is clear to me that in its course it has instantaneously been stayed,—having turned round things on their base, instead of throwing them down, at an angle of 20°, which not only in my own house but in others have occurred, showing a circular motion for at least an instant. I had a bust of plaster of Paris and a family medicine chest standing on a chest of drawers moved round in this way, while nothing occurred to my house (built, however, purposely on my own plan for resisting earthquakes) except the removal out of place of a few tiles. A large brick chimney, well stayed above with iron stays, was divided at a certain height from the ground in a horizontal line, and the upper part was twisted round over the lower to about the same angle. In some houses which stood firm from being frame built, though cracked in all directions, the furniture in the rooms, particularly up stairs, appeared as if some fiend had been among them, making them his playthings, some upset, some turned round, &c. I conceive, therefore, now, that since earthquakes are little felt to the eastward of the Cordillera and severely so to the westward, along the whole range, that chain of mountains must be the point of attraction for the electricity of the atmosphere, and that it then follows westward a proper conductor in the earth, finally leaving the earth in the sea,—for how can a ship at sea be shaken as a house on shore, which has been the case, by any other element, for water being capable of compression if driven against a solid frame, as a loaded ship is, will yield to the resistance, and the blow given to the vessel is different altogether? I have experienced in this place, as I have stated, three ruinous earthquakes,—that of 1822, which I passed in the house until the back fell, that of 1829, and the present; and from observations on each occasion and now again, particularly as in each case I have been calm and resigned, I think I may be allowed to venture my conjecture in common with others, in which I feel so confident that you are at liberty to submit them to your scientific friends if you please, and if any require further particulars I shall be happy to give them. I may, however, add something more;—the barometer and thermometer indicated nothing, nor was there the least warning of any description; but, as invariably occurs after a heavy shock, we had on the third day after a shower of twelve hours' rain, for which I had already prepared, aware of its being the consequence, happen at whatever season it may. I conceive, also, that I have felt less relaxed than before it. I cannot understand all these things unless electricity be the agent; while the atmosphere must be affected in some way to shower down rain

at seasons when under ordinary circumstances it does not fall. Santiago (the capital of Chile), Casa Blanca, and Quillota seem to have suffered equally with Valparaiso; and the two latter places worse, while some of the public buildings of the capital are ordered to be pulled down. My wife, who is at that place, mentions every subsequent shock tallying exactly with those here. The shock of 1822 was, however, about double in force and time; and I recollect well it was with difficulty I could stand, whereas on the present occasion I had no trouble. On that occasion, the sea in the Bay of Valparaiso retired considerably, and was several days in reaching its former level, while on this no such thing was observed. Your newspapers may make out a different story, but you have here at least correct observations. The country is advancing fast; but it is an awful fact to contemplate that the most massive buildings of the country are the first to yield to the phenomena referred to.—The generally received impression is, that earthquakes have their origin in consequence of violent subterranean action, doubtless of a chemical character. Sometimes the violent eruptions of volcanoes are accompanied by severe earthquakes; and in regard to those of Peru I will instance one of this species, in which volcanic action was accompanied by a terrific earthquake, viz. the eruption in February 1600 in the mountain range of Ormate, twenty-two leagues from Arequipa. On the 13th of that month the volcano broke out with great fury and the ground was in continual motion. On the 18th, in the evening, the movements were more rapid, and at 10 P.M. there was such a shock that it awoke the soundest sleepers, and every five minutes during the night shocks continued. On the morning of the 19th occurred a dreadful shock, of which the Spanish MS. from which I extract this says, 'the movements were now more rapid, and in the twenty-four hours there were more than 200 shocks. The heavens were darkened with clouds of eruptive matter, flashes of lightning were seen, and then there descended much white ashes like a fall of snow, which covered the country around.' On the 28th of the same month happened the most dreadful shock of all. The town of Quinistacas, four or five miles distant from the volcano, with 100 inhabitants, was buried; the town of Ormate also perished; also many villages in the vicinity were ruined; indeed, the whole country was desolated and ashes fell more than ninety miles distant from the volcano. The first earthquake I experienced was in 1825 and at Chile. There was a shaking of the ground, some houses and walls fell down, and the water in the (arequias or) water-courses splashed over. I was also in that of 1829, being in Santiago. The commotion commenced on Saturday the 26th of September, at twenty minutes past 2 P.M. The principal undulations appeared to come from the south-east. The great shock was 1½ minutes' duration. Half an hour afterwards there was a shower of rain, and another slight shower at half past 4 P.M. The weather, however, before the earthquake was rather inclined for rain. During the night of the 26th there were slight shocks; also some on the following days, Sunday and Monday. On Friday the 1st of October, at half-past 12, there was another shock, as well as at half-past 1. I went out into the street and found the inhabitants looking at two volcanoes that had broken out,—one in the Deima, behind the first range of the Cordillera,—the other in the mountains of Maipu (which last was observed to be in activity just after the earthquake of the 26th), the smoke rising majestically. In Peru I have felt many, but not very heavy ones. In the province of Tarapaca, lat. 20° south, I have noticed them as occurring two or three times a month, sometimes accompanied by a slight rumbling noise, which appeared to be subterranean. But on one occasion, being in the silver mines of Guantajaya, a few miles east of the port of Iquique in the province of Tarapaca (these mines are from 2,000 to 3,000 feet above the sea), at about 100 yards perpendicular depth in the mine a slight rumbling noise was heard, as if coming from the Andes, which increased and then passed onwards to the west; the noise was immediately followed by a horizontal oscillatory movement, then a vertical, then a mixture of these, or a shake, and then all was quiet, save a commotion occasioned by some of the loose stones of

the mine rolling downwards. My impression then was, and still continues, that earthquakes in the region under discussion (Peru and Chili) originate from volcanic causes. A great part of the Andes is volcanic; Chile abounds in active and quiescent volcanoes; and in the province of Tarapaca there are the volcano of Isluga, with its five craters,—the *Volcanicos* or Water Volcanoes of Puchutilla,—doubtless many quiescent ones,—on its northern boundary the volcanic group of Gualtieri,—and on its southern the volcanoes of Laguna, Oles, &c." Still, the account received from my friend Mr. Budge appears so very circumstantial, that I am induced to give his information regarding the late earthquake in Chile in *extenso*.

'On the Ethnological Position of the Brahúi,' and 'On the Languages of the Paropamisus,' by Dr. R. G. LATHAM.—Both these papers were thrown into one, as the question bore on the ethnology of India. The Brahúi are a peculiar people, with a peculiar language of Biluchistan, Mekran, and part of Seinde. It had been suggested by Lassen that their tongue had affinities with the southern (Tamuhian) tongues of India. This, by new facts, is placed beyond doubt. If so, the displacement by which they are now isolated is remarkable. Reasons were given for considering the Brahúi as an old and aboriginal population of the parts they now occupy, rather than recent settlers. The Paropamisus languages are those of Wokhan and Shugnan on headwaters of the Oxus,—those of the Dardos and Dhunghers on the Indus,—those of the Siaposh and Chitrali on the Konur,—and those of the Pashai and Lugmani on, or near, the Cabul river. To these may be added, the Baraki and the Dir and Tirhai, whose locality was once as far south as the middle of Afghanistan. The great displacement involved in the present confined limit of these populations was enlarged. Their language was transitional to the monosyllabic tongues and the Afghan and Persian.

'Notes on the Australians,' by Mr. TOWNSEND.

TUESDAY.

Sir R. I. MURCHISON opened the business of the Section by bringing before it some notes of Sir James Brooke, the Rajah of Sarawak, 'On the Geography of the Northern Portion of Borneo.' He pointed out the present state of our acquaintance with the geography of this great island, as derived from the researches of British travellers and surveyors, and as published in the recent map compiled by Mr. Petermann. He described the communication of the Rajah as important, in making known the ascent by Mr. Law of the lofty mountain of Kira Balav (near 14,000 feet above the sea), situated in the north-eastern district, and the intention of Mr. St. John to proceed up the Barram river between Sarawak and Labuan and to visit the populous country of the Kayans and perhaps that of the Kuineah; a people unknown to our geography, but numerous and hospitable and speaking a language distinct from the Kayans or Dyaks. The Rajah adds,—"Some letters from the Kyan Chiefs of Barram have lately been printed by order of the House of Commons, and will point out where the real danger to the progress of geographical research is to be apprehended."

'Notes to accompany a Map of Cambodia,' by Mr. W. EARL.

'Observations on some of the Aboriginal Tribes of New Holland,' by Dr. H. THOMPSON.

On the reading of a paper by Capt. J. L. STOKES, R.N., 'On the Survey of the Southern Part of the Middle Island of New Zealand, with Memorandums of its Exploration,' Mr. TUCKETT made several observations, which the President deemed so important that he requested Mr. Tucket to draw up an analysis of them for publication. Of which analysis the following is a copy.—"Having been employed in 1844 by the New Zealand Company to explore the eastern and southern coasts of the middle island of New Zealand in order to select a suitable site for the then projected settlement of New Edinburgh, I had occasion to examine carefully the district described. I can fully confirm the accuracy of the observations in respect to the vast extent of available surface which exists south of Tuturau and the Matura river to the shore of Levease Straits; between the Eureka or New River and the Aparima westward, as also to the east of Eureka. I cannot, however,

concur in recommending it as a district eligible for a settlement. Instead of its affording good pasture for grazing or fertile soil for husbandry, in my judgment the surface is rather rude, and the vegetation, chiefly large, detached bunches of a very coarse sharp-edged junk. Where the banks of the Aparima and Eureka are wooded, I found chiefly the totara and the manuka growing luxuriantly, but in deep sand; whilst those portions of the gently undulating uplands which are wooded would afford, almost exclusively, varieties of the birch, which abounds and attains great dimensions even on the poorest land. The earth presents a surface of a whitish hue when dry, without mould or humus, being a deep and gritty clay (as I found by frequently digging), which I am convinced would not bear any adequate crop without being first well manured. Between the east and west branches of the river Eureka the land is low and sandy. Eastward to the coast is a vast bed of fine quartz gravel covered with heather and luxuriant mosses; and in some places occurs peat of pretty good quality and considerable depth. There is good timber at the western extremity of Bluff Harbour, and between it and the river Eureka some extent of bush land, in and around which a herd of cattle finds sufficient pasture, but feeding chiefly on the milk thistle, &c. There is a small community of Europeans at the Bluff and at the Aparima, who have intermarried with the natives, and who, pursuing whaling, sealing, and husbandry, and in a few instances stock-keeping, have attained to very comfortable circumstances. Some were in the practice of growing wheat, but they informed me that the climate was unfavourable; rains being frequent and copious and the gales of wind boisterous. While my vessel lay at anchor in the Eureka in the month of May we had to encounter, in the surveys executed and on our several exploratory journeys, very inclement weather. Considering then the climate, the soil and the natural growth, I am convinced that there is no very eligible site for a future settlement south of the Matura river and Tu-tu-rau; a favourite residence of the natives formerly, when they were more numerous, because it afforded shelter from the southern climate, good fishing and fertile land. From Tu-tu-rau north to Otokau there is an unbroken tract of fertile and well-watered land, affording abundant pasture and much of it of excellent quality for tillage. It abounds with supplies of coal, wood, timber, brick-earth, stone, conveniently dispersed through the district and very accessible by the facilities of inland navigation which its rivers and lakes afford. Again:—For fifty miles north of Otokau, there is a district presenting almost equal capabilities for large productiveness. Further north along the ninety miles beach, extending about twenty-eight miles above Banks Peninsula, there is a vast plain, for the most part either too arid and stony or too wet and swampy to be eligible for occupation. There is but a very limited quantity of fertile land good enough for tillage within a distance of twenty miles of either of the harbours of Banks Peninsula. The surfaces of plains in New Zealand usually present a succession of terraces in lines parallel with the courses of the rivers, rising in steps of from six to fourteen feet in elevation. Much of the surface is desolated by a closely-imbedded boulder and shingle; and usually where these occur of the greatest breadth, and where is a dead level, the surface is the most stony. On the hill lands of Banks Peninsula there is good pasture; but it is not so on the plain. My reasons for rejecting it as ineligible for the site of a settlement, as well as my Report of the entire journey of exploration which I made in 1844, are alluded to but not added in the Seventeenth Report of the Directors of the New Zealand Company, and the substance of the same will be presented to the public under the head of 'Topography of the Middle Island of New Zealand' in the work on British Colonies, written by Mr. R. M. Martin.

'On the Volcanic Groups of Milo,' by Mr. LEYCESTER, R.N.—The paper commented on the prospect of a survey developing the geological structure of the island. That structure, as at present known, indicated that it was probably raised from the sea at an ante-historic period. This supposition, which seemed to be well founded, was illustrative of the elevation crater theory.—Prof. McCoy said that the shells found in this group of rocks were all of

existing species, showing its elevation to have been of comparatively recent date.

The PRESIDENT asked the PRINCE of CANINO to give his opinion respecting the disappearance of the Great Dinornis, and whether it was his belief that the disappearance of the large continent which that animal was supposed to inhabit was to be inferred from such ornithological data.—The PRINCE of CANINO agreed in the probability of such an inference. With respect to the large birds of Madagascar and the large eggs which had been lately produced, there was at present much discussion going forward in the Institute of Paris.

'On the Meteoric Iron of Atacama,' by Mr. G. A. BOLLAERT.—Some of the blocks of meteoric iron found there were alleged by the natives to have risen or burst from the earth: they contained nickel and other metallic bases.—The PRESIDENT observed that although these meteoric blocks were alleged to have risen from the earth, there was no reason to place implicit faith in that opinion, as some large blocks of meteoric iron were seen falling in that part of the globe by very good observers. Besides this, their external structure was very peculiar, and was also such as to discourage the idea that they were of volcanic origin.

'A Comparison of Athletic Men of Great Britain with Greek Statues,' by Mr. J. B. BRENT.—Mr. Brent began with stating the difficulty of arriving at an accurate average of the weights and measurements of the men of any given country. In order to obtain those of the athletic he measured and weighed celebrated boxers, cricketers, wrestlers, rowers, pedestrians and others. These he compared to the heights and weights of soldiers and policemen, and thence with certain celebrated Greek statues. And from such a comparison it appears that the wrestlers of Cornwall, Devon and the north of England are not inferior to those statues.

This concluded the list of papers to be read.

SIR R. MURCHISON said that the union of the science of Geography with Ethnology in this section was productive of very satisfactory results,—and he was glad to be able to remark the harmony which had prevailed. He believed that the combination of these two sciences would be found most beneficial to both, and would raise them much higher in the general estimation of the Association.

MONDAY.

SECTION F.—STATISTICS.

Prof. HANCOCK read a paper entitled 'Should Boards of Guardians endeavour to make Pauper Labour self-supporting, or should they investigate the Causes of Pauperism?'—He commenced by showing that the history of the Irish famine had completely established the necessity of a public and compulsory system of poor laws, both on moral grounds and as a matter of policy.—He next pointed out that the controversies respecting poor laws had arisen from taking too narrow a view of the subject. The subject of public relief of pauperism really gave rise to questions in every branch of the social sciences, in moral philosophy, the science of government, jurisprudence, and political economy. As to the particular question proposed to be discussed in the paper, it had been suggested by the efforts of the Sheffield and Chorlton and other boards in England to make pauper labour self-supporting,—by Dr. Alison's paper 'On the Employment of Paupers on Waste Lands' at the Edinburgh meeting of the Association,—and by similar plans attempted by the Cork, Thurles and Banbridge boards of guardians, in Ireland. On investigating this question, it appeared plainly that pauper labour could not be made self-supporting, for four reasons:—1. Because pauper labour was necessarily inferior to the labour at the command of private capitalists.—2. Because boards of guardians are entirely unsuited to act as capitalists. The failure of the cultivation of waste lands at King William's Town in Ireland by the Commissioners of Woods and Forests, and the failure of the Waste Land Improvement Company, both showed how unsuited such an enterprise was to be undertaken by boards of guardians.—3. Boards of guardians must either have all the most skilful paupers, or they would have to relax the test of destitution to retain them, and so would lose more by the increase of pauperism than they would gain by any profit on

pauper labour.—4. And lastly, because, if pauper labour could be self-supporting, it would follow that communism would be more advantageous than competition:—as paupers employed by a board of guardians were in exactly the position of a community on the system of St. Simon, and to become paupers they must have failed to support themselves by free competition.—It followed, therefore, from these considerations that pauper labour could never be made self-supporting, and that industrial enterprises could never be successfully carried on by paupers. The opinion that pauper labour could be made self-supporting had to some extent been caused by the common fallacy on the opposite side of supposing that paupers should be kept in idleness or at unproductive work. This fallacy had arisen from the mistake of believing that pauperism was caused by over-production, whilst it always arose from under-production or production misdirected. But the moral and economical views of this question coincided. It was the duty of the guardians to keep those under their care actively employed, since nothing could be more demoralizing than a life of idleness, and nothing more calculated to weaken the force of the workhouse as a test of destitution than making it a place for the indulgence of idleness. In an economic point of view, it appeared extraordinary how any one could believe that the wealth of a community could be increased by keeping a number of people in idleness. As the task of making pauper labour productive was a hopeless one, it was the duty of all intelligent members of the community, and especially of guardians of the poor, to consider the wide field for exertion open to the philanthropist and the statesman in the discovery and removal of causes of pauperism. In a paper 'On the Causes of Distress at Hull and Skibbereen during the Famine in Ireland,' which he had read at the Edinburgh meeting of the Association, he had pointed out some of the causes of pauperism in Ireland. In other publications he had treated of the same subject. But beyond the subjects which he had already noticed there were large fields of investigation connected with sanitary arrangements, with the savings of the poor, with intemperance and immorality. The great advantage of a long-lived over a short-lived population in respect to wealth, especially the wealth consisting of human labour, had not been sufficiently dwelt on. The early mortality of the Irish labouring population was a great source of pauperism amongst them. Every improvement in sanitary arrangements would lead in the most certain way to an increase of wealth and a diminution of pauperism. The want of a perfectly safe place for the investments of the poor was another prolific source of pauperism. He had shown in another paper read at this meeting, that the present half Government and half charitable savings banks afforded no adequate security, and although this subject had been investigated for some time no practical good had been done. Again, could nothing be done with those large sources of crime, intemperance and immorality? It might be that nothing could be done directly,—but could nothing be done indirectly? Was any one warranted in saying that with investigation nothing could be done? Would not the mere inquiry (if conducted in a proper spirit) into the nature and extent of these evils and into their causes, be attended with beneficial results? If rightly considered, it would appear that all social evils and all defects in our institutions were to some extent causes of pauperism. The effects of these evils were shifted from class to class until they came upon those in the lowest place, but this class had to bear them. He then showed that it was the especial duty of boards of guardians, as a department of Government, and as the department most directly connected with pauperism, to institute careful inquiries into the causes of pauperism in their respective districts. By an enlightened conception of their duty in this respect, and by a conscientious discharge of it, boards of guardians would do infinitely more for the diminution of poor-rates and for the effectual removal of pauperism than they would ever effect by the hopeless task of attempting to make pauper labour self-supporting. The careful conducting of such inquiries, if undertaken from a sense of duty and if carried out with the single-minded object of arriving at truth, would have a most salutary influence on the

entire administration of the poor-laws. It would encourage a spirit of enlightened benevolence, and put a check to the heartless selfishness that was too often avowed and even carried out in poor-law administration:—such selfishness as was manifested in the endless disputes about the settlement of paupers in England,—such selfishness as led to the transmission of paupers from England and Scotland to Ireland,—such selfishness as led men to advocate any scheme of emigration, of law of settlement, of arranging electoral divisions, provided it ended in what was called "getting rid of the paupers"—or provided it forced some one else, by an extra stimulus on his self-interest, "to get rid of his paupers." Nothing would be so well calculated to check such selfishness and to secure the adoption of sound arrangements for the future as for those immediately connected with the administration of the poor-law to undertake a comprehensive and enlightened investigation into the causes of pauperism.

The Secretary read a communication by Mr. COCKS 'On the Mortality in different Sections of the Metropolis in 1849.'

TUESDAY.

Sir C. LEMON, Bart., in the chair.

The Secretary read a paper, by Dr. E. T. TILT, 'On the best Means of Ascertaining the Number and Condition of the Infantile Idiots in the United Kingdom.'—The object was to show a mode in which the inquiry suggested by Dr. Coldstream, and approved of by the General Committee at the Edinburgh Meeting of the Association, might be made at a trifling expense. The urgency of an inquiry into the extent of infantile idiocy appeared at once from the following considerations.—1. It was well known that in England, as in other countries, many children were born with congenital deficiency of understanding, which if uncorrected necessarily led to their being pitiable and degraded objects at full age. 3. There could be no doubt that the various forms of infantile idiocy could be always alleviated and often cured:—this was especially shown by the success of Dr. Guggenbühl. 3. It followed, therefore, that it was desirable to ascertain the number of such idiots in the United Kingdom, and for this purpose the machinery which the Poor Law Commissioners had at their command presented the readiest and least expensive means. It would only be necessary to print the required schedules and forward them to the union medical officers—who would fill them, without requiring for such a work of charity any increase to their pay.

In the discussion on this paper Mr. KENNEDY, Director of Statistics at Washington, pointed out that in the last United States census, the name and residence of every idiot in the States was recorded, so as not only to show the number of idiots, but also to give to charitable institutions the means of relieving them.—Mr. J. HANCOCK and Mr. GOWING also took part in the discussion.

'On the Influence of Discoveries in Science and Works of Art in developing the Condition of a People,' indicated by the Census Operations of the United States,' by Mr. J. C. G. KENNEDY.—He commenced by alluding to the fact that new elements seemed to be working in the minds of men, and the legislation of States throughout the world induced them to study their own real condition and to acquire information of the state of other nations and people, with a view to reciprocal advantage; and alluding to the Great Exhibition and the meeting of the British Association, declared his belief that these movements exerted a greater influence in disseminating the principles of peace and goodwill among men than the combined influence of all other efforts in operation. It was contended that no laboured works of art, no great discovery, no developments in science were calculated to illustrate the true condition of any people. In proof of this, allusions were made to ancient sculpture, poetry, oratory and the remains of architecture as developed in the splendid relics of regal mansion and royal tomb,—where was to be found no remain or published record which could justify us in believing that the people enjoyed even a moderate degree of social comfort or the benefits of good laws,—and he attributed the decline of empires to increase of luxury, inattention to the real condition and ignorance of the wants of

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E. T. TILT, the Number the United a mode in Coldstream, mitted at the on, might be gency of an ey appeared s.—1. It was er countries, al deficiency and necessarily objects at full our, condition, birthplace, profession or occupation, disease or cause of death, and the number of days ill. In connexion with these statistics, they procure an account from each county in the United States of its geological formation, its soil, rocks, minerals, mountains, marshes, rivers, timber; its date of settlement, its date of organization, the place of nativity of its first settlers; its canals; its plank, turnpike and rail roads, telegraph wires; banking institutions, insurance offices, their capital and dividends. They enumerate the acres of improved and unimproved land belonging to each farmer, its value, the value of his farming implements and machinery, the numbers of each variety of live stock, its value, and the product of his farm, specifying the quantity of each variety. They enumerate the various manufactures and trades, with the amount of capital invested in the business, the quantity and kind of raw material, the value of each, the kind of power used, the number of male and female hands employed, the wages paid, and the various productions in quantity, kind, and value. They take the aggregate value of all personal and real estate of each county, the kind and amount of taxes; the number of colleges, academies, and schools, the teachers and taught, with the revenues. They take an account of the libraries, newspapers, and churches, with their number, character, circulation, and value respectively. These elementary facts, it was contended, formed the only true basis of knowledge with respect to a people; and that while they illustrated the exact condition of that people in wealth, numbers, natural increase, health, longevity, and general comfort in different locations at the same moment, they were so taken as to admit of combinations of interesting tabular arrangements, rich and varied, for the use of the moralist, philosopher, and statist of all countries. Many of the developments of the census already made known were glanced at.—1st. The influence of the foreign population in their midst, which he contended was of so pernicious a character that common humanity required of foreign nations more attention to the education of their indigent population, if the subject was viewed only as affecting the destinies of their people when scattered over the New World, setting aside entirely its value to the peace, welfare and happiness of those at home. He contended that ignorance multiplied crime, and adduced facts to prove that to the ignorance and degradation of

r. KENNEDY, pointed out the name and was recorded, of idiots, but the means of Mr. GOWING

Science and of a People, the United commenced its seemed to be legislation ced them to require infor- people, with luding to the the British movements ing the pri- than the in operation's of art, no science were tion of any were made in the remains tended relief there was to record which people en- el comfort or tributed the inattention the wants of

the people, neglect of education, and indifference to morals. He contended that the Government of the United States had adopted the best system yet made available by any people for eliciting those facts necessary for the understanding of their true condition. The United States were the first to incorporate the principle with their *fundamental law*. Other nations had taken censuses previous to them,—but the object of such was mainly to learn their own availability in a military point of view, or to know what amount of imposition might with safety be placed on estates so as barely to preserve and not entirely destroy them. But the Government of the United States was actuated solely by the desire to know the true condition of the people, in order to legislate with wisdom, and to know in what things to encourage continuance, what error to abate, what abuse to correct. He showed that in 1790 they confined their inquiries to the number of the people of different colours and conditions, as free and slave; twenty years after they included statistics relative to agriculture, manufactures, and commerce; now, at the distance of sixty years, they include, by a *law made permanent*, a collection of nearly all those facts the development of which will illustrate their exact condition as to numbers,—white, black, and mulatto, male and female, free and slave, at every age. The present census, when fully compiled, will give the number of families, the number of dwelling-houses, and the occupations, professions, and trades of all persons; the birthplace of each individual; the number married, widowed, and single; the number attending school, the number unable to read and write; the blind, deaf, and dumb, the insane, the idiotic, the paupers, and convicts. With reference to the slave population, they take the ages, sex, colour, the number voluntarily manumitted, the number who have manumitted themselves, with the deaf and dumb, blind, insane and idiotic. They take an enumeration also of those who have died, their age, sex, colour, condition, birthplace, profession or occupation, disease or cause of death, and the number of days ill. In connexion with these statistics, they procure an account from each county in the United States of its geological formation, its soil, rocks, minerals, mountains, marshes, rivers, timber; its date of settlement, its date of organization, the place of nativity of its first settlers; its canals; its plank, turnpike and rail roads, telegraph wires; banking institutions, insurance offices, their capital and dividends. They enumerate the acres of improved and unimproved land belonging to each farmer, its value, the value of his farming implements and machinery, the numbers of each variety of live stock, its value, and the product of his farm, specifying the quantity of each variety. They enumerate the various manufactures and trades, with the amount of capital invested in the business, the quantity and kind of raw material, the value of each, the kind of power used, the number of male and female hands employed, the wages paid, and the various productions in quantity, kind, and value. They take the aggregate value of all personal and real estate of each county, the kind and amount of taxes; the number of colleges, academies, and schools, the teachers and taught, with the revenues. They take an account of the libraries, newspapers, and churches, with their number, character, circulation, and value respectively. These elementary facts, it was contended, formed the only true basis of knowledge with respect to a people; and that while they illustrated the exact condition of that people in wealth, numbers, natural increase, health, longevity, and general comfort in different locations at the same moment, they were so taken as to admit of combinations of interesting tabular arrangements, rich and varied, for the use of the moralist, philosopher, and statist of all countries. Many of the developments of the census already made known were glanced at.—1st. The influence of the foreign population in their midst, which he contended was of so pernicious a character that common humanity required of foreign nations more attention to the education of their indigent population, if the subject was viewed only as affecting the destinies of their people when scattered over the New World, setting aside entirely its value to the peace, welfare and happiness of those at home. He contended that ignorance multiplied crime, and adduced facts to prove that to the ignorance and degradation of

the foreign population in America could they point as productive of the most terrible evils to themselves and as the cause of nearly all the pauperism and crime which could be shown to exist in the Northern States. He contended that, if the statistics of any country proved the inefficiency of education to promote morals, the error could be traced to some erroneous theory of government or laws where such facts were developed. He contended that such a state of facts was irreconcilable with a Government where no rights of primogeniture existed, where all had the same inalienable rights, and where participation in legislation was based on morals, intelligence, and ability. He took a view of the proportion between sexes and colours and the relative increase of each, contending from the facts developed, that the coloured population would become rapidly extinct if immediate emancipation of slavery was to occur. While deprecating its morality, he contended that it was a matter of *State jurisdiction* and that the general Government was not responsible for its continuance. He alluded to the advances made in seeking out and providing for the deaf and dumb, blind, insane, and idiotic paupers and criminals, and gave a gratifying account of their progress. He dwelt at some length on the reciprocal advantages arising from their protection of their manufactures to their morals and agriculture,—estimating the capital invested in the former at \$400,000,000; but that their agricultural resources would justify a double amount of investment in manufactures, to which they looked as the natural supporter of agriculture in all time to come,—that while England could purchase cheaper from the Continent they need not rely on her as a great consumer,—and that, as things were, the gold they dug in California was silently but surely passing through their own mints into those of Europe for re-coining and thence into the coffers of European capitalists. He next alluded to the principle of taxation, that on real estate, as the proper one and the only rational one to induce persons to bring into cultivation the immense bodies of wild land accumulated by capitalists. In giving an account of this important branch of their investigations, he dwelt on the extent and character of education bestowed on the youth of America, and exhibited its influence on their morals and the good of the State,—traced the origin of provision for education in the several States, and their movements in its behalf up to the present time, when there were in the schools of America 2,500,000 scholars and a school fund of \$30,000,000.

In the discussion which followed, Mr. ASA WHITNEY, Col. SYKES, Mr. J. HANCOCK, Mr. HODGSON, Mr. GOWING, and Prof. HANCOCK took part.

On the prospects of the Beet Sugar Manufacture in the United Kingdom, by Prof. HANCOCK.—Public attention had been directed to this manufacture by the effort to establish a public company in London for its introduction into Ireland. He had learnt that at Maldon the manufacture had been attempted by a private company, but this attempt led to failure in a short time. A manufactory had been recently established at Chelmsford, and contracts had been entered into with the farmers in that neighbourhood. The prospects of the manufacture depended on the answers to three questions:—1st. What was the price of beet-root likely to be for a series of years? 2nd. What was the price of refined beet-sugar likely to be after 1854? and 3rd. Would it be profitable to carry on the manufacture at these probable prices of the raw produce and manufactured article?—As to the price of beet-root, its price varied in France from an average of 13s. 11d. per ton in the north-east of France to 18s. 5d. per ton in the north-west of France. The average for the whole of France was 15s. 1½d. per ton. In Ireland the price stated to be contracted for by the Sugar Beet Company was 15s. 6d. per ton, and the price at Essex from 18s. to 20s. per ton. Thus it appeared that the present price in Ireland was higher than the average of France, and the present price in England was higher than the average of the highest priced districts of France. What the future price in Ireland and England was likely to be was a difficult question, and had not been as yet fully investigated.—As to the second question—the price of refined beet-sugar after 1854,—it was necessary to take the year 1854 because at

present there was a differential duty in favour of home grown beet-sugar, which would diminish each year and cease after July 1854. After that time the short price of refined beet-sugar would most probably not exceed 27s. to 28s. per cwt., and the long price would most probably not exceed 40s. 4d. to 41s. 4d. per cwt. Indeed, a fall below those prices might be anticipated from three causes:—From the diminished cost of production of refined cane-sugar, consequent on the increased consumption produced by the fall in its market price from 49s. 4d. to 42s. 4d. per cwt. on the equalization of the duties. 2nd. From the removal of the absurd restrictions now imposed on cane-sugar refiners. 3rd. From the competition between cane-sugar and beet-sugar if the latter were manufactured to any extent.—As to the third question, would it be profitable to manufacture from beet-root at the Irish price of 15s. 6d. per ton or the Essex price of 19s. per ton, refined sugar to sell at 28s. per cwt.? The calculations on this point which had been most relied on were two in number,—that of Mr. W. K. Sullivan, chemist to the Museum of Irish Industry in Dublin, and that of M. Paul Hamoir, of the firm of Serret, Hamoir, Duguesne & Co., the largest manufacturers of beet-sugar at Valenciennes, dated 18th of April, 1850. These estimates were as follows:—

Mr. Sullivan's Estimate for Ireland.
60,000 tons of beet, at 15s. per ton £45,000
Cost of manufacture, at 9s. per ton of beet 27,000

Total outlay 72,000
Produce, 5 per cent. of sugar, at 28s. per cwt. 93,000
Estimated profit £21,000

Same Estimate applied to Essex.
60,000 tons of beet, at 19s. per ton £57,000
Cost of manufacture, at 9s. per ton of beet 27,000

Total outlay 84,000
Produce, 5 per cent. of sugar, at 28s. per cwt. 93,000
Estimated profit, only £9,000

M. Paul Hamoir's Estimate for France.
61,607 tons of beet, at 12s. 11d. per ton £38,400
Cost of manufacture, nearly 13s. per ton of beet .. 39,900

Total outlay 78,300
Produce, 4½ per cent. of sugar, at 39s. per cwt. 114,000
Estimated profit in France £35,700

Same Estimate applied to Ireland.
61,607 tons of beet, at 15s. 6d. per ton £46,000
Cost of manufacture, nearly 13s. per ton of beet 39,900

Total outlay 85,900
Produce, 4½ per cent. of sugar, at 28s. per cwt. 61,430

Estimated loss in Ireland £24,550
Same Estimate applied to Essex.

61,607 tons of beet, at 19s. per ton £58,557
Cost of manufacture, nearly 13s. per ton of beet 39,900

Total outlay 96,457
Produce, 4½ per cent. of sugar, at 28s. per cwt. 61,430

Estimated loss in Essex £16,997

From these simple calculations it appeared at once, that by only introducing into the estimates the Irish and English prices of beet-root and of refined beet-sugar, the result was so varied as to turn a profit of 35,000l. at the French prices on a capital of 78,000l. into a loss of 4,000l. at the Irish prices, and a loss of 16,000l. at the Essex prices. It followed, therefore, that the French estimate did not, as had been alleged, corroborate Mr. Sullivan's estimate:—on the contrary, it showed how fallacious it was to reason from the success of the manufacture in France to its success in the United Kingdom, without taking into account the difference of the prices of beet-root and refined beet-sugar in both countries,—the difference in economic conditions between the two countries being alone sufficient to make that which was profitable in France unprofitable here. The manufacture of beet-sugar had been first commenced in France when the continental system of Napoleon and the retaliation of England had almost excluded cane sugar from France. From that time to the present beet-sugar had always had the protection of an artificial price,—(the present price being 39s. per cwt. in France as compared with 28s. per cwt. in this country). In every other country in the world where beet-sugar had been produced it had the protection of an artificial high price. The conclusion was manifest, therefore, that from any calculations yet submitted to the public it appeared that the manufacture

of beet-sugar could not be profitably carried on in the United Kingdom.

MONDAY.

SECTION G.—MECHANICAL SCIENCE.

'On the Proposed Railway Communication between the Atlantic and Pacific Oceans, through the British Territories of North America,' by Mr. DOULL. —I will advert to Mr. Asa Whitney's project for the construction of a railway from Lake Michigan to the Pacific, through the territory of the United States, which has deservedly attracted considerable attention in England. It is quite clear that in the paper read before the Royal Geographical Society on the 9th of June 1851, Mr. Whitney has injured his cause in the estimation of the British public, by taking too wide a range by claiming for his proposed line the whole of the traffic between Europe and China, and the islands of the North and South Pacific Oceans, discarding alike the existing routes by the Isthmus of Suez, the Cape of Good Hope, and Cape Horn, and by asserting that should the Isthmus of Panama be swept from its position and a complete union of the two seas be effected, the commerce between Europe and the rest of the world would not flow to any appreciable extent through that channel, but would be attracted to his proposed line of railway communication. Had Mr. Whitney based his project upon its own intrinsic and legitimate merits and resources, characterized it as a mere local line, or, at most, a United States line, and not designated it as the highway and the only highway of nations, it would have assumed more of a *bond fide* and practical character; and it is quite clear that Mr. Whitney could afford thus to narrow the operations of his project, as it is evident that if a belt of land thirty miles on each side of a line of railway is colonized and brought into profitable cultivation (which supposition is the basis upon which the success of this project rests) abundant traffic would be created to work the line, keep it in repair, and to furnish a sinking fund for renewal. The project when divested of all extraneous and adventitious circumstances appears to be nothing more than this: there has existed for a considerable time, and there still exists, a continuous tide of emigration setting to the west, but with its frontage extending from the boundary of the British provinces on the north to the Gulf of Mexico on the south. Mr. Whitney, conceiving it desirable to reach the Pacific as soon as possible, proposes to converge the present extended frontage of location to a belt of land sixty miles in extent, and thus to accelerate the westward tendency in proportion to the frontage thus narrowed. In order to change this direction by drawing a sufficient number of settlers into this proposed sixty-mile belt, he must hold out advantages superior to those which can be obtained elsewhere. The project, so far as it has been developed, appears to be totally destitute of any systematic arrangement for the location of settlers, or for their government, civil or municipal. Nor has anything been said about the mode in which the numerous and hostile tribes of Indians are to be disposed of. Mr. Whitney, not being an engineer, does not appear to apprehend much difficulty in running his railway across the Rocky Mountains; which he admits to be about seven thousand feet high, and so flat on the top as to preclude the possibility of a tunnel of any reasonable length. To rise 7,000 feet by a gradient of 1 in 100, would require tailing out for a distance of 132 miles, or with a gradient of 1 in 50, equal to a distance of 66. But suppose that the base of the Rocky Mountains is placed upon an elevation of 1,000 feet above the level of the sea, leaving 6,000 feet to be overcome by an ascending gradient, which would require, at 1 in 100, a distance of 113 miles, and 1 in 50, 56½ miles. It is scarcely possible, however, to suppose that gradients of the above character could be obtained in passing this somewhat formidable mountain range, and it is highly probable that the ascent is much more abrupt than to admit of even the steepest of the above gradients to be constructed. It is unnecessary to do more than advert to the more prominent features of Mr. Whitney's plan:—and that simply in order to show that there are much greater facilities for the construction of a line of railway in the territories of British North America, and to prevent the public mind of England from

being led to suppose that the route through the United States is the only practicable one. The superiority of the British line, not only with respect to facilities of construction but with reference to the greater variety and the more extensive fields of productive labour which will be opened out in the various rich mineral districts passed through, is so palpable to all who have turned their attention to this important subject as to force itself upon the attention of the American press. The *New York Tribune* of March 27, 1851, after advertizing to Mr. Whitney's project, and expressing fears that it would fail of meeting that support from the Congress of the United States which its importance deserved, proceeds to state that "the route through British America is in some respects even preferable to that through our own territory. By the former, the distance from Europe to Asia is some thousand miles shorter than by the latter. Passing close to the northern shore of Lake Superior, traversing the water-shed which divides the streams flowing towards the Arctic Sea from those which have their exit southward, and crossing the Rocky Mountains at an elevation some 3,000 feet less than at the south pass, the road could here be constructed with comparative cheapness and would open up a region abounding in valuable timber and other natural products and admirably suited to the growth of grain and to grazing. Having its Atlantic seaport at Halifax and its Pacific depot near Vancouver's Island, it would inevitably draw to it the commerce of Europe, Asia, and the United States. Thus, British America, from a mere colonial dependency, would assume a controlling rank in the world. To her other nations would be tributary, and in vain would the United States attempt to be her rival, for we could never dispute with her the possession of the Asiatic commerce or the power which that confers." The advantages of a communication from the Atlantic to the Pacific in a northern latitude to connect the great commercial nations of the world, which are principally situated on the northern hemisphere, was early felt by several nations, and great, though unavailing efforts have been made to discover a North-West Passage through the Arctic Regions. Halifax in Nova Scotia will possess considerable advantages over New York in the United States, as the Atlantic terminus of a railway communication across the continent of America, inasmuch as a line drawn from Cape Clear, in Ireland, to New York would pass very close to Halifax, and thus the whole of the coasting distance of the sea-passage from Halifax to New York would be saved. The support of the Government to the Halifax and Quebec Railway was not rendered with that promptitude which was anticipated, considering the favourable report of its own officers, consequently the operations of the Association have been delayed. But the Imperial Government has now come forward with the offer of every necessary assistance for the construction of a railway from Halifax to Quebec or Montreal, and which the colonies will be happy to accept. So far, therefore, as the present paper is concerned, the construction of this initial portion—about seven hundred miles—of the great Atlantic and Pacific Railway may be considered as amply provided for. The passage of the Rocky Mountains is doubtless a point of considerable importance, and one upon which it must be admitted there is no data for the formation of any definite plan. All authorities, however, concur in viewing this barrier as much less formidable on the British than on the United States territory. Having crossed the Rocky Mountains, either by ascending to the summit upon lateral spurs, or passing through by a tunnel, as circumstances might determine, the line would take the direction of Fraser's River, to the Pacific Ocean. The numerous and spacious harbours, with secure anchorage, and a rare combination of maritime advantages, in the vicinity of Vancouver's Island, with an abundant supply of coal, point to this locality as the site of the future capital of the West.

Mr. ASA WHITNEY explained at great length the steps already taken by him for inducing the States to support his plans for forming his line on the United States territory, from New York to Columbia River, and showed that to a certain extent he accorded with the views of Mr. Doull; as, in case of his own plan not being adopted by Congress, he was prepared

to make a similar proposition for running his line on the British territory.—Capt. FRZROY, R.N., ably supported Mr. Whitney's views, demonstrating that there was not any serious engineering difficulties to be overcome—that the reason why the plan had not been taken up warmly by the States, was entirely political, and that the slavery question materially interfered with it.—Mr. BAYLEY raised the question of the impediments arising from snow and frost on any line of railway during the winter.—Mr. WHITNEY's line passed from 42° to 46° of latitude, whereas the Canadian line would pass nearly at 50°. The farther the line proceeded north the less obstruction there would be from snow. If there was little moisture there must be little snow, and that very light—there was more snow in a southern latitude.—Single line, with 64lb rail, 15,000 dollars per mile.—Mr. DOULL in reply, remarked that emigrants going to Canada could find nothing to do, and some left for the States where they found employment and were soon independent. The principal intention of the paper is to draw attention to this very anomalous state of things, and to open out public works for the encouragement of emigrants from Great Britain to settle in the British territories instead of the United States.

'On an Improved Condenser for Marine Engines,' by Mr. J. S. PRICE.

TUESDAY.

'On an Improved Mode of Casting the Specula of Telescopes,' by Mr. NASMYTH.

'On an Improved Modification of the Reservoir for Gold Pens,' by Mr. J. THOMSON.

'On the Construction of Iron Vessels exposed to Severe Strain,' by Mr. W. FAIRBAIRN.—In the construction of vessels such as boilers, pipes, &c. exposed to severe internal pressure, it is desirable to obtain some knowledge of the strength and condition of the material used, and some fixed rules calculated to enable us to judge with accuracy as to the disposition of the parts, in order to apply the greatest strength in the direction of the greatest strain,—and, in fact, so to dispose of the material, that every part of the vessel shall balance itself in its powers of resistance when subjected to uniform pressure. To attain these objects, the author gave the results of his experiments on the resistance of malleable iron plates, first announced to the British Association, and subsequently published in the Transactions of the Royal Society. These experiments were originally undertaken to determine the strength of metal plates, beams and angle iron, as applied to ship-building; and they have since been continued, from time to time, for the equally important purpose of improving the construction of malleable iron bridges, boilers and other vessels, such as caissons and sheet iron pipes, which are now coming into more general use for pump-trees and other articles connected with mining. In order to acquire satisfactory data on the strength of the material employed, a variety of plates from Low Moor, Staffordshire, and other parts, were submitted to direct experiment: first, by tearing them asunder in the direction of the fibre, and secondly, across it. The tensile strength per square inch was ascertained to be as follows:—

	In the direction of the fibre.	Across the fibre.
	Tons.	Tons.
Yorkshire plates	24.26	26.93
Derbyshire plates	21.68	18.65
Shropshire plates	22.82	22.00
Staffordshire plates	19.56	21.01
Mean in tons	22.16	22.29

From this it will be observed that there is no difference in the strength of iron plates whether torn in the direction of the fibre or against it, and this uniformity of strength probably arises from the superior manner in which that article is now manufactured. The experiments would, however, be imperfect as regards construction if they had not been extended to the process of rivetting; and on this point our information has been of the most meagre description. Until of late years, many of our numerous constructions have been conducted under the impression that the rivetted point was not only strong but absolutely stronger than the plate itself; whereas, more than one-third of the strength is lost by that process. To prove the fallacy of these views, it was ascertained by experiment that the strength of iron plates, as compared with their rivetted joints, was not only weakened to the extent of the quantity of metal

joined on following rivetted joint. From deduction of single rivet the square inch of the square inch, has been rivetted similar connection with introduction and retainers of the boiler should be observed that these which two in number exterior shell with gusset rivets. The use of infinitely less than stay drawing force long as the staves in great value, and is to every part.

Arrivals additional at the B. Mr. Laya officers of occupied new and light, chief and customarily con and carth preservation broken to quick index for future are, however some dozen —supposed vine strain day; the feet of ch half iron wheel, or pieces; on colours; a half in length of a substa and the earthenware feet high a quality that head, and state of in

Religious institutions for works about think require of the change and the (not break) must deserv beyond the printed,—

William. My inquiries to the prop if they are printed on the Trust Society their business —How far the on the the breaking that there carrying heavy see, July 12

punched out to receive the rivets, but that in the following ratios, viz., as 1,000 to 700 in the double-riveted joint, and 100 to 560 in the single-riveted joint. From the above facts practical formulae have been deduced to show that the maximum resistance of single-riveted plates does not exceed 27,000 lb. to the square inch; and taking into account the crossing of the joints and other circumstances peculiar to sound construction, 34,000 lb., or 15 tons per square inch, has been found to be the maximum strength of riveted plates such as those used for boilers and other constructions. In conclusion, attention was directed to several important improvements in connection with the construction of steam boilers by the introduction of gussets to strengthen the flat ends and retain them in shape. After noticing that all boilers should be of the cylindrical form, Mr. Fairbairn observed that where flat ends are used they should be composed of plates one-half thicker than those which form the circumference. The flues, if two in number, to be of the same thickness as the exterior shell, and the flat ends to be carefully stayed with gussets, of triangular plates and angle iron, connecting them with the circumference and the ends. The use of gussets is earnestly recommended as being infinitely superior to, and more certain in their action than stay rods. They should be placed in lines diverging from the centre of the boiler, and made as long as the position of the flues and other circumstances in the construction will admit. They are of great value in retaining the ends in shape, and may safely be relied on as imparting an equality of strength to every part of the structure.

MISCELLANEA

Arrivals from Nineveh.—Several cases containing additional antiquities from Nineveh have arrived at the British Museum from Liverpool; and Mr. Layard and Col. Rawlinson, assisted by the officers of the antiquity department, have been occupied in unpacking them. A great variety of new and interesting objects have been brought to light, chiefly connected with the domestic economy and customs of the ancient Assyrians. They principally consist of instruments and vessels of bronze and earthenware, several in a very perfect state of preservation, others thickly encrusted with rust and broken to fragments. The use of some of them is quite inexplicable for the present, and must be left for future ingenuity and study to discover. There are, however, bowls and vases, many richly chased; some dozens of earthenware studs of different shapes, supposed to be for harness; a very perfect bronze wine strainer, similar to those in use at the present day; the hinges of the gates of the palace; legs and feet of chairs; a curious mask of iron or bronze; richly ornamented handles of various kinds; a large wheel, or the bronze casing of it, broken into many pieces; one or two small glass vases of very beautiful colours; a quantity of cylinders about an inch and a half in length, carved or inscribed, one or two of them of a substance resembling plumbago both in appearance and weight, but the greater part of them of earthenware; a statue of a priest in stone, about four feet high and much ornamented, and with the peculiarity that the figure has no cap or covering on its head, and is apparently bald; and, lastly, several blades of inscriptions.—*Times.*

Religious Tract Society.—This Society's list of new publications for July 1, 1851, is now inclosed; and amongst other works about to be issued are two therein specified, which I think require some explanation from the official representatives of that Society. They are entitled, 'The Royal Exchange and the Palace of Industry,' and 'The Palace of Glass and the Gathering of the People.' These two volumes (not tracts) have already had a wide circulation, perhaps more deservedly so. Of their contents I know nothing beyond the title-pages; on each title-page, however, I find printed,—

London:

William Jones, 36, Paternoster Row, and 164, Piccadilly. My inquiries are as follows.—Are the two books referred to the property of the Religious Tract Society, or not?—If they are the property of the publisher whose name is printed on the title-pages, are the supporters of *The Religious Tract Society* expected to pay rent, &c. for the transaction of this business as well as the publisher's private speculations?—How far the *Religious Tract Society* are right in departing from the original title of the Society, I will not now inquire. On looking into their Annual Report for 1850-51, I find that there is an entire omission from their accounts of their carrying liabilities and of the value of stock of books on hand, see folio 128 to 133. I am, &c. JOHN MORRIS.

Traditions from remote Periods through few Hands.

—The following facts may not be uninteresting on this subject.—The late Maurice O'Connell of Derrynane, county Kerry, died early in 1825, and would have completed 99 years on the 31st of March in that year. The writer hereof has heard him tell anecdotes derived from the conversation of Daniel McCarthy, of the same county, who died about 1740, aged at least 108 years. This Daniel McCarthy was commonly known by the nickname of 'Dhonnald Bhin,' or 'Yellow Dan,' and was the first man that ran away from the battle of Aughrim. There is a short account of him in Smith's 'History of Kerry,' in which he is mentioned as lately deceased. You have thus a period of over 200 years, the traditions of which might be derived through three persons, the survivor of whom, your correspondent, is but middle-aged. I remember being told, in the county Clare, *circa* 1828, of an individual, then lately deceased, who remembered the siege of Limerick by Ginkle, and the news of the celebrated treaty of Limerick. It is to be wished that your readers who reside in or may visit Ireland, would take an interest in this subject. I am certain that in remote parts of the country much curious tradition could be thus brought to light; and it would be interesting to compare the accounts of great public events as remembered and handed down by the peasantry with those which we take on the faith of historians.—*Notes and Queries.*

English Law and the Code Napoleon.—In No. 1236 of the *Athenæum*, p. 452, in the notice of Mr. Turner's 'Popular Lecture on Law,' you say,—“After these (250,000 points of law) come the whole body of Statutes at large, followed by commentaries, annotations, dissertations, reports of cases, decisions and classifications;” and you add, as if implying that the law of France is to be found in a less compass than that of England. “Of these, no estimate, so far as we know, has ever been given. YET, the entire Code Napoleon lies in a volume!”—The effect of codification (such as that in France) in reducing the bulk of a law library, it would be well to ascertain; and perhaps some of your legal readers in France would be so obliging as to state the number of volumes now requisite for a complete law library for a French advocate in the highest grade of practice. Allow me to refer you to the 'Contre-projet to the Humphreysian Code,' by the late Prof. John James Park, published in 1829. He very carefully investigated the subject, and collected and published some curious facts. Amongst them you will find the following:—PREFACE, p. xii. note, “The then existing digest of the decisions on the Code, by the Cour de Cassation only, filled 20 volumes.”—[Viner's Abridgment (without the Index) of decisions on English law, extending over several centuries, filled 24 volumes].—Page 20, “The judicial decisions in France since the establishment of the Code Napoleon [then about 20 years] already amount to nearly as many volumes as the whole number of reports in an English law library.”—[extending from the reign of Edward I. to that of George IV.].—Page 66, “The English reports then filled 347 volumes, and the materials of English common law then consisted of 557 volumes.”—Page 131, note, “M. Dupin's 'Bibliothèque choisie à l'usage des Etudiants en droit, et des jeunes avocats,' in his 'Manuel des Etudiants en droit,' Paris, 1824, consisted of 343 volumes.”—PREFACE, p. xi. “Depuis que le Code a été promulgué, depuis que ces nouvelles tables de loi ont été exposées aux regards du peuple, mille et mille questions inattendues se sont offertes aux magistrats et aux jurisconsultes; une discussion perpétuelle s'est engagée sur chaque matière, sur chaque article, et sur chaque mot; dix mille arrêts ont été rendus; plusieurs centaines de traités et de commentaires ont été publiés; nombre de lois, de décrets, d'avis du Conseil-d'Etat ont abrogé ou interprété les dispositions du nouveau Code. Jurisprudence, doctrine, législation, tout s'accumule, tout se multiplie dans une progression toujours croissante, et bientôt la science ne sera plus qu'un labyrinthe inextricable.”—[Thémis, ou Bibliothèque du Jurisconsulte, Paris, 1819. Tom. I. p. 48—Page 153, note, “It is amusing enough that the French refer to our Statutes as an example of brevity.”—Page 154, A complaint by Le Comte Janjuinais, not a lawyer, of the laws of France in 1819. “La multitude immense des lois—qui obscurcit toutes les questions politiques et civiles; qui nous tourmentent, nous ruine, et fournit des prétextes aux représentations, aux ministres, aux administrateurs, aux juges, aveuglés de préventions, ou animés d'un mauvais zèle.”—These quotations may serve to indicate that there are reasons for doubting whether the Code Napoleon has done much in abbreviating law. Its grand utility was in giving to the whole of France one uniform law, in the place of some hundreds of differing laws of law. Prof. Park's book is well worth reading; and the light that he has thrown on the silent working of English law, owing to its great certainty in the vast majority of cases, is sufficient to commend it to the perusal of our legislators.—Laws will be few and simple as soon as litigiousness is extinct. While it exists, while plaintiff and defendant will not be content without fighting every point, commentaries, annotations, dissertations, reports of cases, decisions, and classifications” in England—“mille et mille questions, nombre de lois, de décrets, d'avis du Conseil-d'Etat” in France,—will be inevitable. Yours, &c. N. R.

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Age when Policy was issued.	Date of Policy.	Sum Assured.	Original Premium.	Reduced Annual Premium for the current Year.
20	On or before 14th May, 1886.	£1,000	£19 6 8	£10 12 8
30		1,000	24 6 4	13 8 7
40		1,000	31 10	17 6 6
50		1,000	42 15 0	23 10 3
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The following Table exemplifies the effect of the present reduction:—

Age when Assured.	Amount Assured.	Annual Premium hitherto paid.	Reduction of 30 per Cent.	Annual Premium now payable.
20	£1000	£20 17 6	£8 5 3	£14 12 3
35	1000	25 18 0	10 7 0	15 11 0
35	1500	43 15 0	13 6 0	30 13 6
45	2000	80 11 8	24 3 6	56 8 2

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Age when Assured.	Sum Assured.	PREMIUMS PAID.	Bonus added.	Per-centage on Premiums Paid.
		Number.	Amount.	
15	£3000	6	£315 0 0	£164 16 8
25	5000	7	775 16 8	347 13 4
35	2500	43	431 17 0	183 18 0
45	2000	6	464 0 0	172 6 7

Annual Premium required for the Assurance of £100 for the whole term of life:—

Age.	Without Profit.	With Profit.	Age.	Without Profit.	With Profit.
15	£11 11 0	£1 15 0	40	£25 16 0	£3 6 5
20	1 13 10	1 19 3	50	4 0 9	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

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Sum Assured.	Time Assured.	Sum added to Policy in 1841.	Sum added to Policy in 1845.	Sum payable at Death.
£5,000	13 yrs. 10 mths.	£68 6 8	£757 10 0	£6,470 16 8
5,000	1 year	6 8	113 10 0	5,113 10 0
1,000	12 years	100 0 0	157 10 0	1,257 10 0
1,000	7 years	0 0	137 10 0	1,137 10 0
1,000	1 year	0 0	22 10 0	1,022 10 0
500	13 years	50 0 0	78 15 0	628 15 0
500	4 years	0 0	45 0 0	545 0 0
500	1 year	0 0	11 5 0	511 5 0

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35	135 19 0	73 7 7	208 9 7
40	138 15 6	74 9 7	213 5 1
45	143 9 0	70 18 9	213 7 9
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30	1 18 8	1 27 7	3 5 5	2 0 7
40	1 5 0	1 9 3	3 0 7	2 14 10
50	1 14 7	1 17 8	4 2 9	2 0 11
60	3 2 4	3 17 0	6 12 9	6 0 10

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1812	1000	13 10 0	211 7 9	
1818	1000	14 10 0	114 12 10	

Examples of Bonuses added to other Policies.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with Addition, to be further increased.
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